

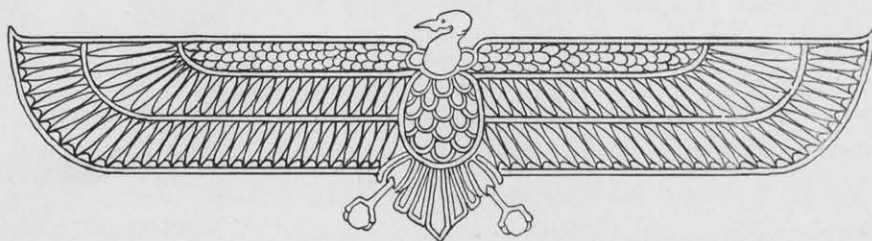


# ASPHALT

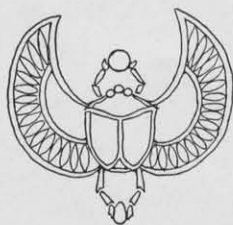
## THROUGH THE AGES







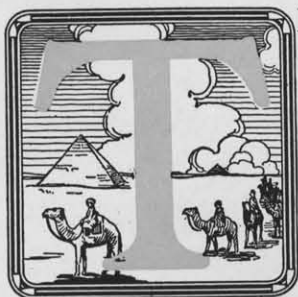
# ASPHALT THROUGH THE AGES



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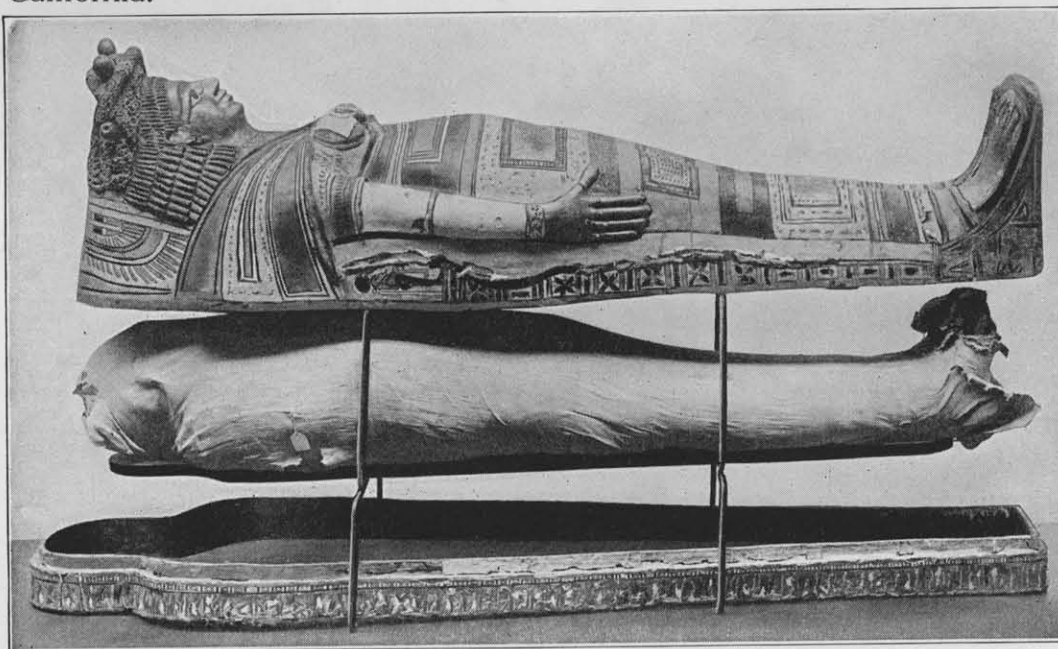


THREE THOUSAND YEARS before the dawn of Christianity—and ages before the building of ancient Rome—asphalt was usefully serving the needs of humankind.

There is real romance in the history of this remarkable mineral, a romance undreamed of by most of us, for from the very beginning, on down through the ages, its record constantly touches the world's development.

### *Asphalt in Ancient Days*

Back in the days of the ancient Sumerians, the Assyrians, the Persians and the Egyptians, they were waterproofing their boats, roofs, and castle walls with it; they were making their pavements with it; they were creating enduring monuments with it; and probably most important of all, the Egyptians had found in it the substance which enabled them to preserve for all time their marvelous Mummies; while Nature herself, many thousands of years earlier, was employing it to perpetuate the rare fossils but recently revealed in the extraordinary La Brea Asphalt Pits of our own Southern California.



Mummy in the Field Museum of Natural History, Chicago.—"No. 30024. It is preserved with bitumen and in quite perfect condition. Roman period 30 B. C." (Reproduced by special permission.)

## An Age-Old Mineral

Contrary to general belief, asphalt actually is one of the oldest minerals we know of, one older than history itself, and a material which has played a most important part in civilization's progress. Ancient history is replete with references to it. The Scriptures tell of its being used for waterproofing Noah's Ark; they tell of its use as a waterproofing on the basket in which Moses was found; it served as a cement in the building of the Tower of Babel, and as waterproofing for the walls of the Hanging Gardens of Babylon. Nabopolassar, King of Babylon, is credited with having created a processional road, "glistening with asphalt." The Dead Sea was originally known as "Lake Asphaltites," and was the spot from which the Egyptians obtained the asphalt for use in mummification.



**"Marvels of Ancient Art Revealed as Coffin of Tut-ankh-Amen is Unsheathed After Three Millenniums."**—"The innermost coffin of Tut-ankh-Amen, a work of incomparable craftsmanship. It is beaten out of \$250,000.00 worth of bullion, magnificently engraved both inside and out, according to the official description by Howard Carter, the Egyptologist. The inner coffin is an idealized likeness in which Tut-ankh-Amen is portrayed as Osiris, God of the Dead. Over the arms and abdomen are the Winged Protective Vulture and Serpent Goddesses Nekhbet and Buto, while engraved over the legs are Isis and Nephthys. In the photograph Mr. Carter has begun removing the consecration oils which have been poured over the third or innermost coffin, and which have been consolidated into a hard, pitch-like material with the passing of the centuries." (Photograph and text reproduced from the New York Times).

## Mummy Means Asphalt

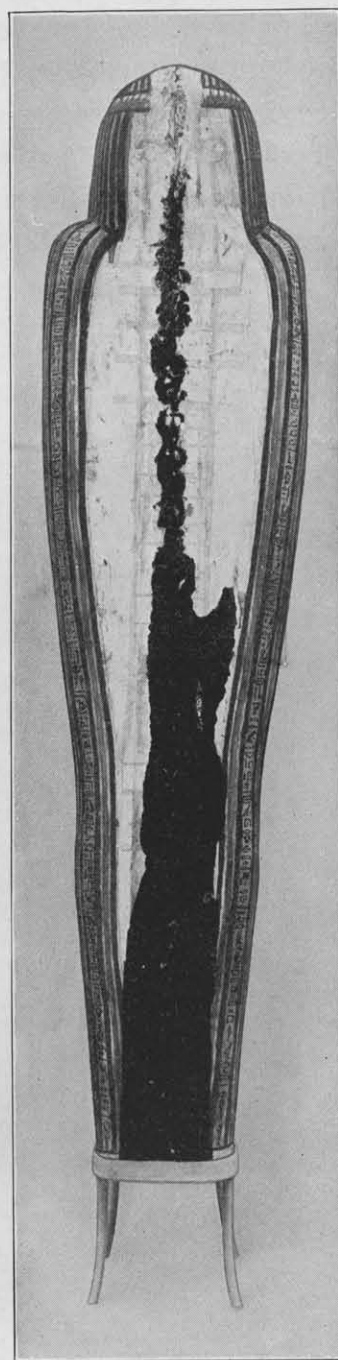
The very word mummy is from the Persian "mumia," or asphalt. Smith and Dawson, in their notable book, "Egyptian Mummies" (Copyright 1924, The Dial Press, New York), vividly describe the part asphalt played in the preservation of the bodies of Egypt's ancient kings, concluding on page 168 with the statement: "If a series of mummies of all the different periods were examined with proper scientific thoroughness, it would be possible to reconstruct the foreign relations of Egypt at each epoch from the resins, the woods, and the *asphalts* found upon the mummies." (Acknowledgment to the publishers).

Funk & Wagnalls' New Standard Dictionary describes "Mummy" as the "embalmed body of a human being or of a sacred animal" . . . . . "wound in many folds of gummed cloth (asphalt and wax being used)."

The Encyclopedia Britannica says: "The name 'Mummy' is derived from the Persian 'mumia,' meaning pitch, or asphalt."

The British Museum's guide book, covering their Egyptian collections, says: "Mummy is the name given to the body of a human being or creature which has been preserved from decay by means of spices, gums, natron, bitumen, etc.; strictly speaking, it should only be given to the body preserved by bitumen, for 'mummy' is derived from a word which appears in Arabic under the form 'mumia,' and means 'bitumen'."

The Museum goes on to state: "Bodies from which the intestines have been removed and which have been preserved by being filled with *bitumen* are quite black and hard, and, practically speaking, *last forever*."



Courtesy of the Metropolitan Museum of Art, New York.



## The Great Preservative

Sir E. A. Wallis Budge, in his fine work, "The Mummy," (Copyright 1925, Cambridge University Press, London), says: "Bodies from which the viscera have been removed and which have been preserved by being filled with bitumen, are quite black and hard" . . . . . "the bitumen penetrates the bones so completely that it is sometimes difficult to distinguish which is bone and which is bitumen" . . . . . "*speaking generally, these bodies will last forever.*"—(Reprinted by special permission of The Macmillan Company, New York). NOTE.—Bitumen, asphalt and pitch were and are interchangeable words—*asphalt is bitumen.*

Sir Budge has written exhaustively of Egypt and its mummies, and a reading of his books is recommended to those interested.

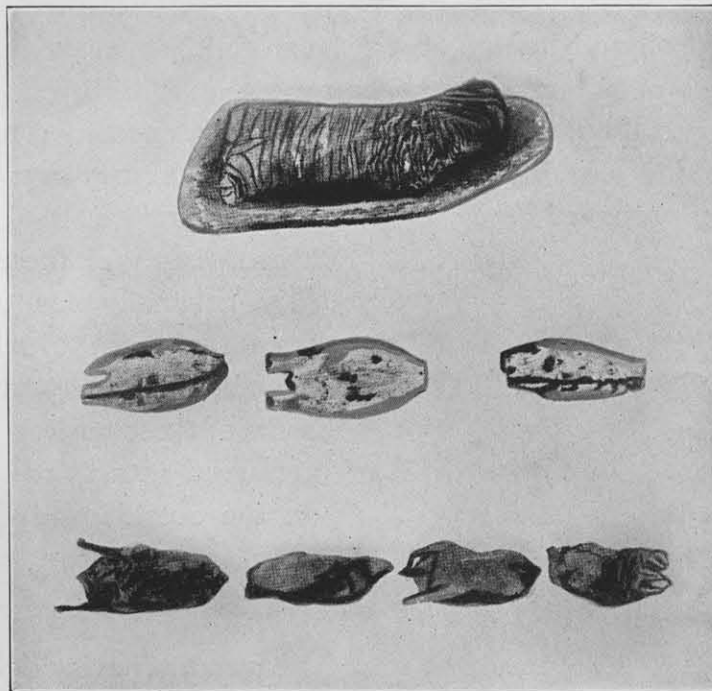


"Tut-ankh-Amen's Shrine Within the Sepulchre."—"Wherein his embalmed body had reposed for thirty-three centuries." ("Wonders of the Past," Copyright 1924, G. P. Putnam's Sons, New York. Courtesy of the publishers).



## The Tombs of the Kings

A visit to the marvelous museum at Cairo, where many of the older mummies repose, is like, as one writer has put it, "a visit to Aladdin's cave." Here are the priceless antiquities gathered from the Valley of the Tombs of the Kings, and first in importance are the wondrous mummies, the preservation of the bodies being so perfect that today, five thousand years after death, they do not deteriorate even when exposed to the air.



Bitumened Cases Mentioned in the Metropolitan Museum of Art's Special Thebes Bulletin.—  
(By the Museum's special permission.)

## King Tut-ankh-Amen

In a section of this great museum, apart from the rest, we come to a display of articles obtained during recent excavations from the tomb of Egypt's most artistic King, Tut-ankh-Amen. Here we find a profusion of precious metals, rare jewels, beautiful statues, wonderful carvings, marvelous furniture, and everywhere *gold and asphalt* employed for both preservative and decorative purposes. Here is an ancient chariot, the hubs of the wheels preserved with asphalt; there a wondrous statue, made eternal by the use of asphalt.

To the observer, it is plain how very important asphalt was in the art of mummification, not only in the mummifying process itself, but in the preparation of the mummy-cases, caskets and burial vaults—all of them protected, inside and outside, with asphalt.

## In New York's Great Museum

The Metropolitan Museum of Art, New York, possesses many remarkable specimens of mummification—human, animal, bird, etc. They have published a special bulletin concerning their own expedition to Thebes in 1919–1920, and in referring to some funerary meats, they say: "These had been carefully preserved by some process of mummification" . . . . . "for



**"Examples of an Art that was Practiced in Egypt for at Least 4500 Years."**—"Mummies of Greek children from the Fayyum, A. D. 200. That on the left is prepared with *bitumen*, and head and shoulders are covered with a gilded cartonnage, and the child is holding a bunch of red flowers in the left hand." ("Wonders of the Past," Copyright 1924, G. P. Putnam's Sons, New York. Reproduced by special permission).

a good many of these, and probably originally for all, wooden cases had been provided which resembled their contents in shape. Some of those enclosing fowl were preserved intact, stuccoed white on the outside and coated with *bitumen* within."

Much interesting data, covering the use of bitumen as a preservative for metals and as a waterproofing, is given in the British Museum's guide book to their collection of Babylonian and Assyrian Antiquities. This data is supplemented with photographs. A description is given of the Babylonian account of the deluge, and here mention is made of the ship which was built to withstand the expected flood, and "the outside of the ship was smeared with bitumen."



## *In Chicago's Field Museum*

The Field Museum of Natural History at Chicago also holds many fine examples of mummification, and a visit is generously repaid by a larger knowledge of this past great art and the very important part asphalt played in it. Similar exhibits are housed within the great museums of London and Berlin. We have gathered together and reproduced herein some rare photographs obtained from these and other sources, touching this subject so little known to the average man.

Our library holds many works replete with details regarding the subjects covered herein, and is at all times available to those interested.

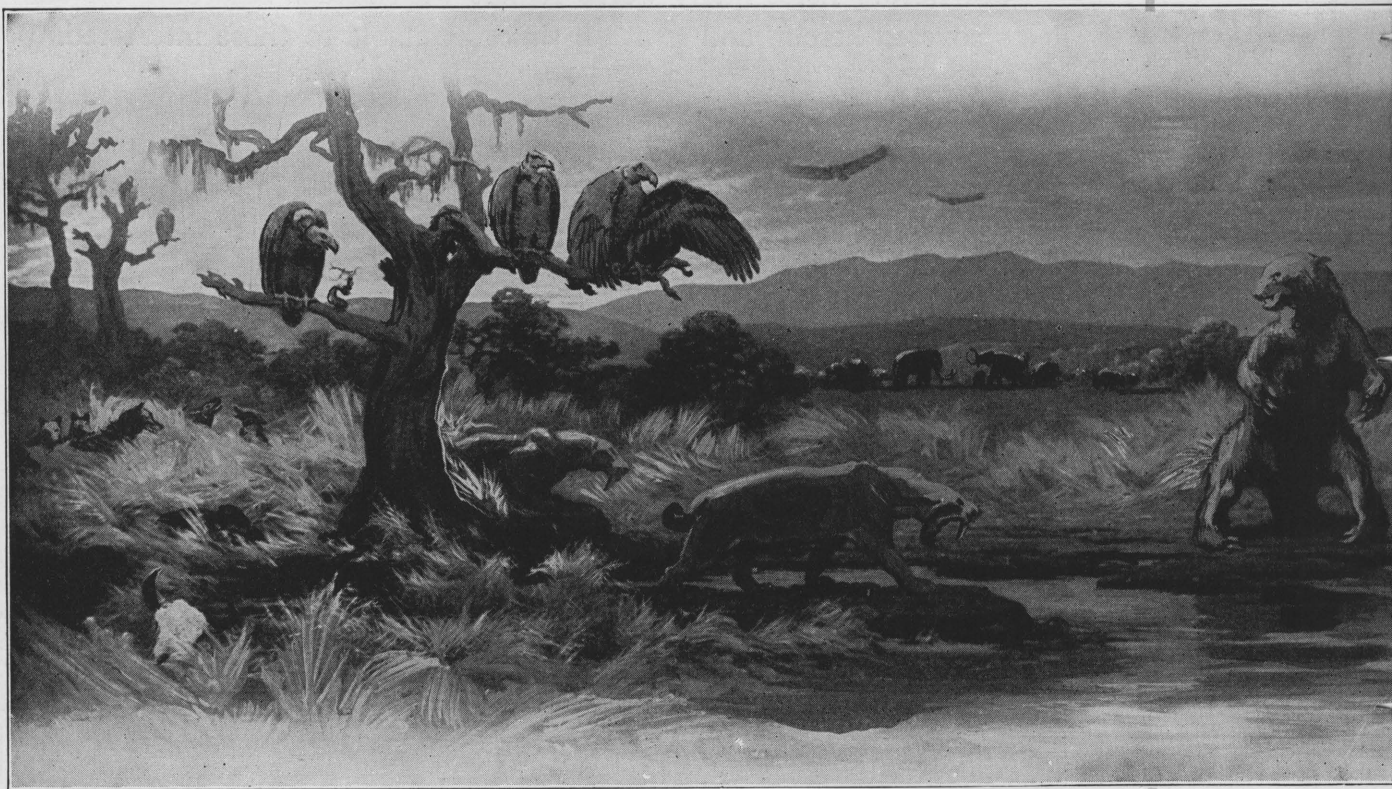


**The Hanging Gardens of Babylon.**—The illustration is an artist's conception of how these lovely gardens probably appeared in actuality. (From "Wonders of the Past," Copyright 1924, G. P. Putnam's Sons, New York. By special permission of the publishers).

## Abraham's Birthplace

The Scientific American of January, 1926, tells of Ur, of the Chaldees, probably the oldest city in the world and the traditional birthplace of Abraham, as related in the eleventh chapter of Genesis, and which was founded between 5,000 B. C. and 4,000 B. C. by the Sumerians. These people, evidently the most civilized of the ancient races, knew the art of writing, were skilled in the use of copper and were artisans of great ability.

"Among the treasures found in Ur is a wonderful relief showing a procession of bulls and made out of cast and hammered copper. Other objects



**The Death Trap of the Ages.**—Thanks to the kindness of the Los Angeles Museum of History, Science and Art, we are able to reproduce this most unusual painting, the work of Mr. Charles R. Knight of New York. The scene represents Mr. Knight's idea as to what happened at Rancho La Brea, in Southern California, some 40,000 odd years ago; the details concerning which we have included in the text matter on page 14. Here we have the Giant Vultures, the Imperial Elephants, the Ancient Ox,

are made of bits of white shell inlaid on a ground of black bitumen. *This bitumen is our modern asphalt.* It was collected at the oil springs and seepages, which still exist in Babylonia. It served the masons of Ur as mortar and the artists of the time as a cement to stick their reliefs and carved plaques to the walls."—(Courtesy of the Scientific American).



The Illustrated London News of August, 1925, also mentions this same ancient city and refers to the great ziggurat, or tower, as "once the glory of Ur and today the most important ruin of Iraq, built of brick and *bitumen*."

## *Asphalt in Babylon*

Koldewey, in his very fine book, "The Excavations at Babylon" (Macmillan & Company, Copyright 1914), makes frequent mention of the many important uses the Babylonians made of bitumen, or asphalt, for waterproofing, paving, etc.



the Sabre-tooth Tigers, the Giant Ground Sloths, Wolves, Camels and Lions, gathered about the asphalt pits, in which they ultimately were to become trapped and their bones preserved through the ages. All of the forms of life herein represented have been extinct for thousands of years, but their bones preserved by the asphalt, and their skeletons reconstructed, today repose in the Los Angeles Museum. This painting is truly a most wonderful conception.

## *The Hanging Gardens of Babylon*

J. A. Brendon, F. R. Hist. S., in his descriptive article, the "Hanging Gardens of Babylon," in "Wonders of the Past" (Copyright 1924, G. P.

Putnam's Sons, New York), says, speaking of these lovely gardens: "The gardens were irrigated by means of hydraulic pumps, which raised water to a reservoir on the highest terrace. On top of the numerous arches the builders laid reeds and bitumen, and, above these, thick sheets of lead. This served to prevent moisture from the soil leaking through and so damaging the spacious and superbly decorated apartments constructed in the vaulted spaces between the arches below." (By special permission of the publishers).



A Gufa, or Boat, Pitched with Bitumen, as Used on the Euphrates.—(From "The History of Assyria," by A. T. Olmstead, Copyright, 1923, by Charles Scribner's Sons. By permission of the publishers).

## In Assyria

Professor A. T. Olmstead, in his wonderful book, "The History of Assyria" (Copyright 1923, Chas. Scribner's Sons, New York), refers often to asphalt, or bitumen, being used by these ancient peoples. He says: "Baked bricks with asphalt were common," and he mentions "the bathroom with its asphalted floor and walls," and he also tells of Ilu-shuma about 2225 B. C. rebuilding the Temple of the Mother Goddess, Ishtar the Assyrian, "and his bricks still prove his work on the solid stone walls, pavement, and asphalted drains and canals."—(Permission of the publishers).

## The Pyramids and the Sphinx

Arthur Danby, in "Natural Rock Asphalts and Bitumens," (Copyright 1913, D. Van Nostrand Co., New York), tells of the wide use of asphalt

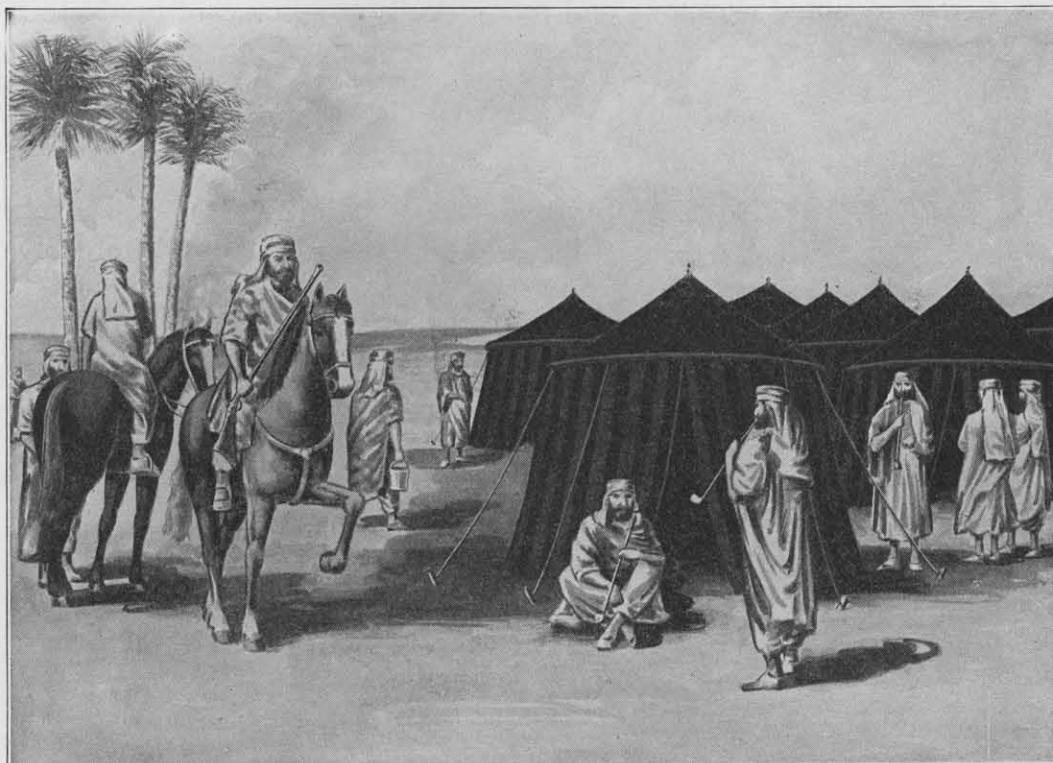


in ancient days for all sorts of purposes. He mentions its employment for the caulking of boats, the waterproofing of housetops, and specifically mentions its being used as a paint in Babylonian times. He also tells of its use in the building of the Tombs of the Pharaohs, in the construction of the Pyramids, the Sphinx, and the Temples, and of its having been employed in general use by the people as a waterproof coating on both internal and external surfaces of their dwellings and as a lining for their tanks and cisterns. It was also used as a waterproofing for granaries, silos, and other structures. He further relates the most interesting fact that the Arabs used asphalt for the waterproofing of their tents.

Danby states that the use of asphalt became a sort of "lost art" after the days of the Romans.

### *Ancient Historians*

Numerous of the older historians make reference to asphalt, among them Herodotus, Xenophon, Diodorus, Josephus, Pliny, Virgil, Homer, Tac-



The Arabs Used Asphalt to Waterproof Their Tents

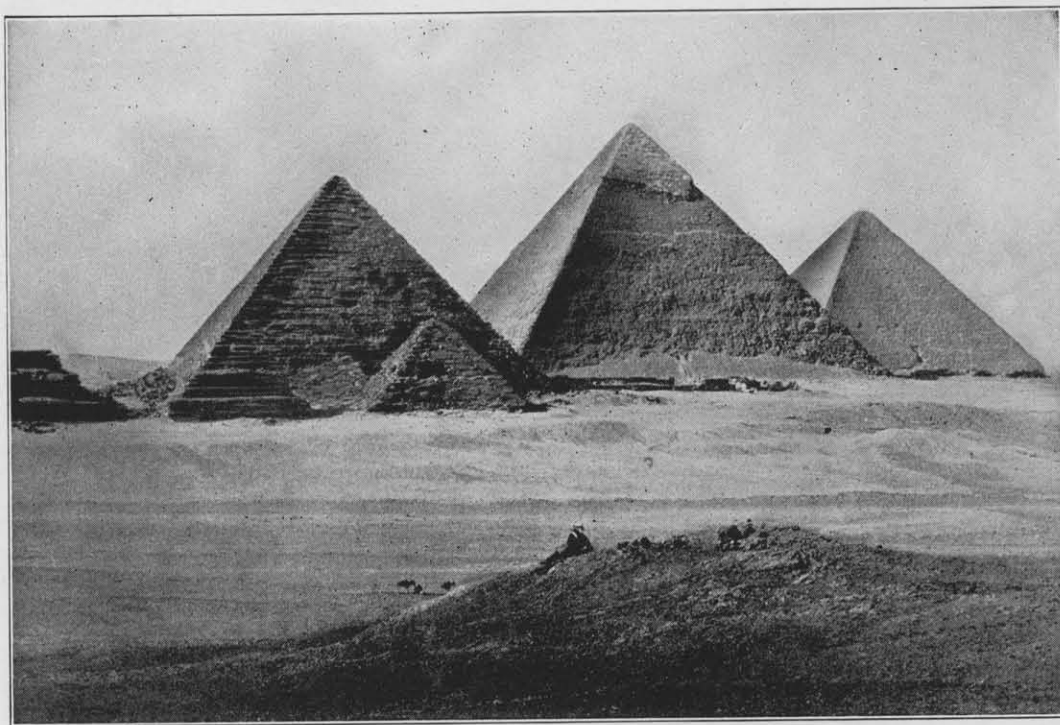
itus, Aristotle and Marco Polo, while it is also recognized by some of the later writers, such as Mandeville, Copgrave, Milton and Shakespeare.

## ***The World's Marvel***

We look back to those days of Egypt, Persia and Sumeria, three, four or five thousand long years ago, and regard them as ancient, indeed, but twenty-five thousand years earlier—yes, *over a hundred thousand years earlier*—this perfect preservative of Nature's was in existence, as is proved by the astounding La Brea Asphalt Pits of Southern California, which have yielded some of the rarest fossils the world holds. These are to be seen today in the Los Angeles Museum of History, Science and Art. We quote briefly from the Museum's description:

## ***Preserved for Countless Ages***

"In the Science Department of the Museum are exhibited a considerable number of mounted skeletons and many skulls and bones of pre-historic



**Asphalt was Used in the Building of the Pyramids.**—(Photograph reproduced from "Wonders of the Past," Copyright, 1924, G. P. Putnam's Sons, New York. By special permission of the publishers).



animals that were trapped in the asphalt beds of Rancho La Brea and their bones preserved in the oil to the present day. These were animals of the Pleistocene, or Glacial Epoch, the geological period immediately preceding the one in which we live, known as the Recent Epoch. They represent the types of great beasts that inhabited North America at that time and which became extinct possibly before the appearance of man and were replaced by modern types."

"As to the age of the La Brea fossils: Authorities agree that the Pleistocene period terminated less than twenty-five thousand years ago, while the duration of the period has been estimated at from 200,000 to 500,000 years. The bones were accumulated sometime during that period."

### *How the Animals were Trapped*

The thought advanced as to how these animals were trapped is that the asphalt beds likely became thinly encrusted with dust, which held quantities of water longer than the surrounding earth, and lured the victims, whose



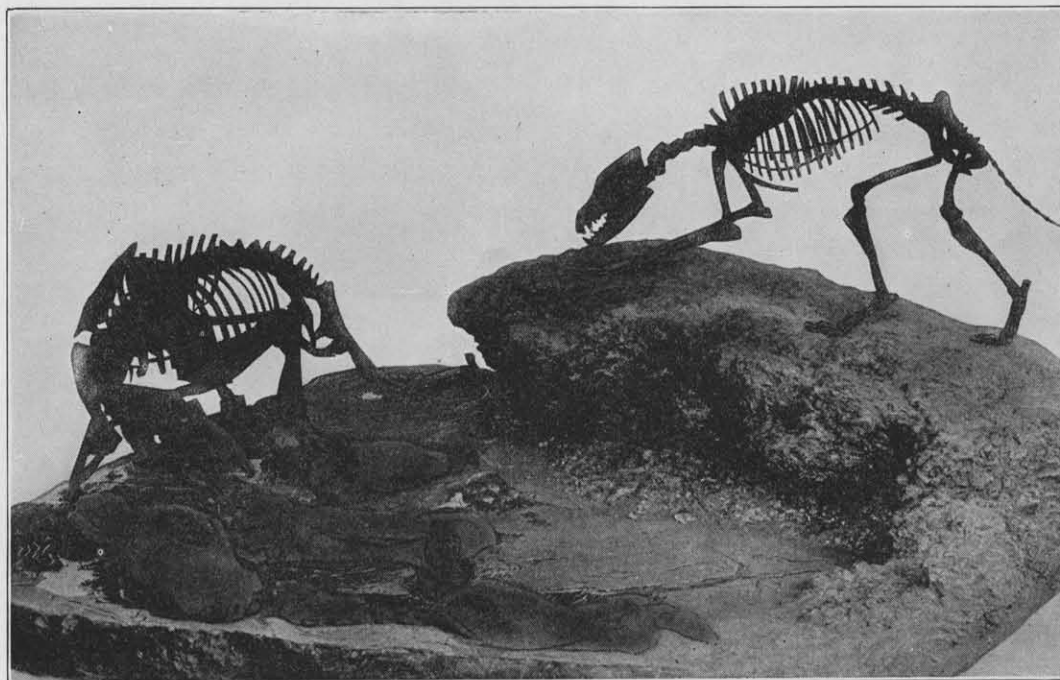
**Rancho La Brea.**—"The old ranch-house, with pool in foreground, where asphalt was excavated for commercial purposes forty years ago." This is an exact photograph of the site of these remarkable pits. (Reproduced by special permission).

weight broke through the thin surface and they would become mired and unable to escape. Once caught, their struggles and cries probably attracted many carnivorous beasts and birds, and these in feeding would also be caught. The flesh would then decay and the bones would settle beneath the surface, and so the trap would be set for succeeding victims. The bones would then become, to quote the Museum, "saturated with this best of all known preservatives."

Here we have a perfect example of what is possible when moisture, the great decaying agent, can permanently be shut out—the protected articles last practically forever!

### *The "Re-discovery"*

And so it will be observed that asphalt is really older than history itself, despite general belief that it is something of comparatively recent days. It is true that asphalt has come into wide usage in the United States only during the past forty or fifty years. In 1885, this country mined only 3,000 tons of natural asphalt, while today the total is 600,000 tons of natural



The Asphalt Group in the American Museum of Natural History, Los Angeles, Cal.—Sabre-tooth Tiger on the left, extinct Wolf to the right and Ground Sloths in the foreground. This group shows some of the interesting fossils preserved by the marvelous La Brea Asphalt Pits.



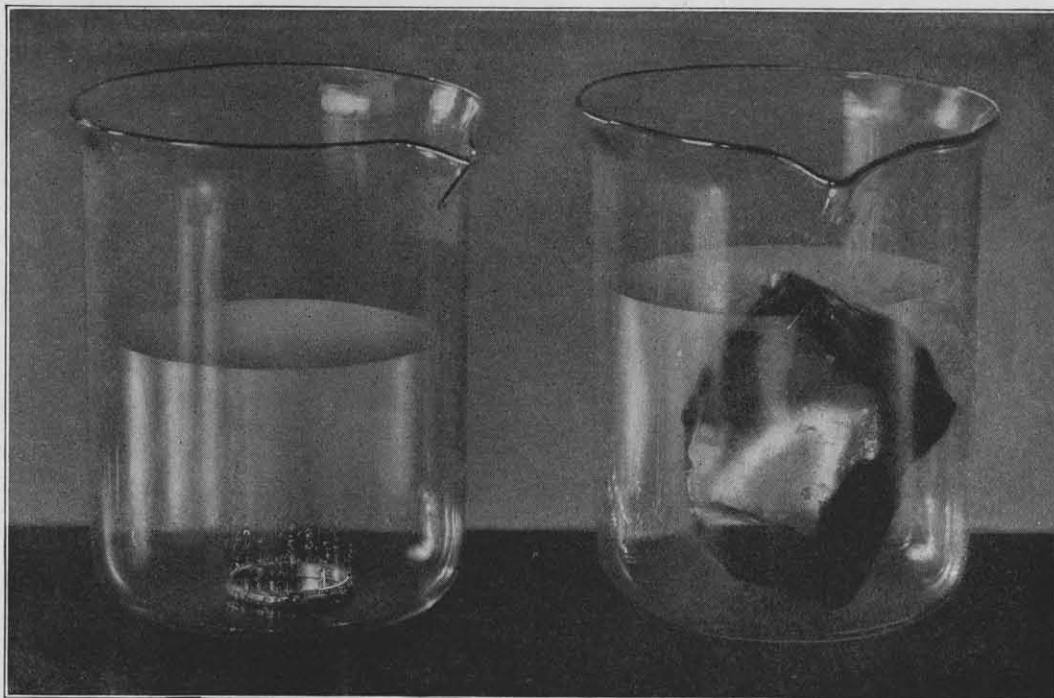
structive distillation, are low in price, but this is their chief recommendation. If permanency is the object, then the hard, natural asphalts (and Gilsonite asphalt is the best of them) must be employed.

It has required many years to demonstrate the positive supremacy of Gilsonite natural asphalt as against artificial asphalts, but today the record is clear and the learned architect, engineer, or contractor permits of no substitution in his specifications—neither oil nor artificial asphalts, nor coal tar is acceptable.

### **99.5% Pure Bitumen**

Asphalt is found in many parts of the world, but the finest comes from Utah, U. S. A. This is known as Gilsonite Asphalt, and it is of such great natural purity (it is 99.5% to 100% pure bitumen just as it comes from the earth) that it is much preferred for all the finer products, and because it is so much better than other asphalts, there is a world-wide demand for it.

Gilsonite asphalt is one of the most remarkable minerals of Nature. Not only is it absolutely impervious to moisture, but it is unaffected by practic-

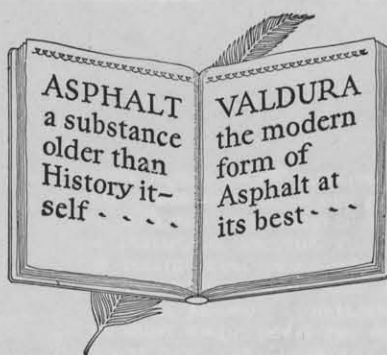


**The Test of Tests.**—A gold ring is placed in Aqua Regia—"royal water."—composed of concentrated nitric and hydrochloric acids. The gold is dissolved. A piece of genuine Gilsonite 99.5% Pure Asphalt is placed in a similar solution and remains unaffected!

cally every acid and alkali. It cannot be broken down even by the severe aqua regia test, shown in the illustration. Only the utmost in powerful oxidizing agents, such as fire, hot sulphuric acid, a mixture of sulphuric and chromic acids, or fuming nitric acid will affect it.

### *The Best in Preservative Paint*

This company made probably the first organized attempt to combine this highest of all types of asphalt, Gilsonite, with equally high type oils, such as Linseed and Chinawood Oils, and that the effort has been successful is probably best shown in the wide sale VALDURA ASPHALT PAINT enjoys and the class of buyers it appeals to. VALDURA has come to mean the best in asphalt paint and the best to be obtained in preservatives, and, thanks to modern ideas and machinery, it is of better quality and easier to use than the asphalts of ages ago, which we have told of and which have left such imperishable records.



**AMERICAN ASPHALT PAINT CO.**

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CHICAGO