



GOLDEN FLOWERS FROM TEPE GAWRA

ing religion; cosmetics, toilet articles and ornaments, sure signs of social amenities; workaday objects like pottery and leatherworkers' tools which point to a well-diversified industry; signature

seals, the mark of commerce and law; and jewels of lapis-lazuli from quarries beyond the Caspian Sea, evidence of foreign trade.

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## ARCHAEOLOGY

## Two Vanished Civilizations Found in South America

**T**WO INDIAN civilizations wiped out of existence many centuries ago, one after the other, have been re-discovered for history by Alfred Kidder 2d, young Harvard anthropologist.

Mr. Kidder, son of the well-known archaeologist, Dr. A. V. Kidder of the Peabody Museum of Harvard, led the expedition to Venezuela, which has announced the discoveries.

Remains of the two civilizations, one buried below the other, were found in a region where there has been little scientific excavation.

Selecting a site on Lake Valencia, on the Peninsula of La Cabrera, Mr. Kidder excavated through two distinct layers of cultural remains. The older civilization, which may have dated from about 1000 A.D., lay in stratified sand and gravel extending from about three feet under the surface down 25 feet or more. The later civilization which followed was discovered in the top soil, or humus cap, three feet thick at the earth's surface.

Though the two civilizations inhabited the same site, the remains indicate practically no relation between them, suggesting that the early civilization may have been destroyed by inroads of a hostile tribe.

The later people held the Lake Valencia site when the Spanish invasion took place, and were completely wiped out by the Spanish, the expedition discovered. This is deduced from complete absence of glass beads, metal ware, or other trade objects which Indian settlements that survived conquest soon acquired.

Thousands of pieces of ancient Venezuelan pottery, most of them shattered and corroded by nearly a thousand years' burial, have been brought back to this country and are being cleaned and assembled.

One of the most interesting finds in the deeper levels of sand and gravel at Lake Valencia are pottery pipes evidently used by the natives in smoking tobacco. Well polished, they are made of

the same clay as the fine pottery, and are often decorated with grotesque faces and torsos. These pipes, according to Mr. Kidder, have no relation with those of any other area in the surrounding regions, either north or south. He points out that most of the natives in the West Indies and in South America did not use pipes, but smoked cigars.

One of the particular differences noted between the civilizations was in the methods of burial. The earlier people practised primary burial, in which bodies are buried immediately after death and left undisturbed. Secondary burial, practised by the later civilization, consisted of exposing the bodies after death, only the bones being buried in urns.

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## METALLURGY

## Rapid Analysis of Steel Made From Its Waste

**A** NEW method of analyzing steel while it is still in the open hearth furnace by "seeing what comes out to tell what is left in" has increased steel production by two per cent.

Since open hearth furnaces produce 85 per cent. of the nation's annual 50,000,000 tons of steel, the seemingly small two per cent. increase could add a potential 850,000 tons each year.

Earl C. Smith, chief metallurgist of the Republic Iron and Steel Co., described the new method of steel analysis before the meeting of the American Institute of Mining and Metallurgical Engineers.

As the steel is melted in the furnace a small sample of worthless slag is run off. A tissue-paper-thin slice of this slag is mounted on a microscope plate and studied under powerful illumination. By knowing what substances are present in the slag metallurgists can make accurate estimates of what materials are left behind and are still in the steel.

The method is like that used by a detective who finds a glove and shoe belonging to a man known to have been fully dressed. From the evidence the detective concludes that the man still has on a hat, tie, coat and so on.

The slag analysis method, Mr. Smith said, tells what is going on inside the furnace more accurately, more rapidly and more reliably than present lengthy chemical analyses.

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It was bad luck, even in the Indian days, for a skunk to enter a house.