

injury or will be localized in the tissue wherein they have gained entrance.

The skin, Prof. Kahn found, possesses a combining power for the immunizing substance more than ten times greater than muscle tissue, brain tissue or blood. Since this combining power is a defensive response, it must be assumed that the degree of immunity of the skin is far greater than that of the other tissues studied.

This is perhaps to be expected, Prof. Kahn observed, since the skin, throughout the ages, has been the most exposed to attack by bacteria, making a particularly strong defensive mechanism necessary.

*Science News Letter, December 30, 1933*

## CHEMISTRY

### "Diplogen" Suggested As Heavy Hydrogen Name

AMERICAN and British scientists do not agree as to what to name science's new baby, the double-weight hydrogen atom, discovered in America.

Lord Rutherford, in a Royal Society discussion upon heavy hydrogen, urged the adoption of "diplogen" as the name of the double weight hydrogen atom and "diplon" as the name of the nucleus or kernel of heavy hydrogen.

Prof. H. C. Urey of Columbia University, one of the group of American scientists who discovered heavy hydrogen, had already christened the atom "deuterium," and at the University of California the nucleus had been labeled "deuton."

The principal objection to the American terms lies in the phonetic similarity between deuton and neutron. Neutron is the uncharged or neutral particle of nearly the same weight as a proton or ordinary hydrogen nucleus.

If the scientists discussing these atomic particles have colds or do not speak distinctly, deuton and neutron are easily confused in speech, Lord Rutherford said.

Dr. Frederick Soddy, the Oxford chemistry Nobelist, who pioneered in investigations on varieties of elements and coined the word "isotope" protested against the idea that ordinary mass one hydrogen and the heavy weight hydrogen of mass two are really isotopes. He considers hydrogen and deuterium (diplogen) homologues like oxygen and ozone rather than true isotopes.

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## ARCHAEOLOGY

### Hidden Temple Found Within Mayan "Castle"

A BEAUTIFUL temple hidden within a temple has just been discovered by Mexican government archaeologists at the old Mayan city of Chichen Itza. The hidden temple is in the lofty Castillo or so-called "Castle", a temple to the Feathered Serpent god, perched on the highest pyramid base in the city.

Aware of the ancient Indian trick of building new structures over old, to honor the gods or to mark the passing of periods of time, no one knows exactly why, the excavators began a year ago to probe into the interior of the gigantic substructure of the Castle.

At first they encountered only walls of a smaller inner pyramid. Later they found a human sepulcher. The burial was accompanied by funeral offerings of turquoise mosaics, thousands of turquoise beads, and exquisitely carved fine jades.

This year they followed the sloping walls of the hidden pyramid upwards, and came upon a stone shrine on the flat summit. The building thus discovered is almost perfectly preserved. The early pyramid and temple had not been destroyed, but merely heaped over with earth and rock to form a larger base for the present shrine of the Feathered Serpent. The roof of the buried temple is flush with the flat summit of the present temple, and forms the floor of the adulatory.

While the theme of designs of the exterior temple consists of plumed serpents and warriors, the most import-

ant decorations of the older shrine are tigers. The tigers are sculptured in stone on the frieze above the door. The facade also has bands of geometrical designs, ornamental shields, and flower-like rosettes sculptured into the stone. These decorations are entirely different in style from those of the present outer temple.

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## PHYSICS

### Raman Effect Found Different in Heavy Water

HEAVY water takes light of one color and changes it to light of slightly different color in a way not the same as this Raman effect in ordinary water, Dr. R. W. Wood of Johns Hopkins University has demonstrated.

In communications to *Nature* and *Science*, Dr. Wood reports that water containing the recently discovered hydrogen isotope of mass two, when lighted with ultraviolet light of 2536 Angstrom units from a mercury vacuum tube, changes part of it to longer wavelengths that average 2711 Angstrom units.

This is a new proof of the optical effect discovered in 1928 by Sir Chandrasekhara Venkata Raman, Hindu scientist who was awarded the Nobel prize in physics for 1930. Dr. Wood was the first to verify the Raman effect outside of Raman's own laboratory.

The new Raman band discovered by Dr. Wood agrees within 4 per cent. with the expected value derived from theoretical calculations. The band observed is due to water molecules that have one atom of heavy hydrogen and

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one atom of ordinary hydrogen in their familiar H two O composition. Dr. Wood also obtained a slight indication of a light band due to water molecules in which both atoms consisted of heavy hydrogen.

This discovery of the Raman effect of heavy water is additional evidence that heavy hydrogen is so different chemically and physically that it can almost be considered a new element.

Dr. Wood used 18 per cent. heavy water prepared electrolytically by Dr. John W. Murray of the Johns Hopkins chemistry department.

*Science News Letter, December 30, 1933*

#### ENGINEERING

### New Pipe Line to Bring More Water to Los Angeles

See Front Cover

**M**ORE water for Los Angeles is the purpose of the big steel serpent which the front cover of this week's SCIENCE NEWS LETTER strikingly pictures climbing a mountain. This project, an achievement of electric welding, is conquering canyon and straddling mountain to join Boquet Canyon Reservoir and Owens Valley Aqueduct with a four and one-half mile long, arc welded pipe line.

The diameter of the pipe varies from six feet eight inches to seven feet ten inches, the smaller diameters being used where pressures are highest. The six-foot-eight-inch pipe is more than an inch thick.

An idea of the size of the job is gained when one learns that 450 pounds of metal must be melted into each joint in order to seal it.

*Science News Letter, December 30, 1933*

#### ETHNOLOGY

## Marco Polo Tales Become Fact Through Research Into History

**H**AVE YOU a drab mental picture of medieval China? A bird's-eye view of a vast, unwieldy and altogether backward mass of people; wise, yes, but with an antiquated wisdom?

If so, take a look at the lively, progressive China that Marco Polo tried to tell the world about when he came back to Europe in 1296, after seventeen years at the court of the Great Khan.

The world enjoyed Marco's reports of Chinese marvels. But take him seriously? Well, it was hard to tell where truth left off and a good imagination began. Marco's travels came to a place of doubtful honor beside the works of Baron Münchhausen and the Thousand and One Nights.

But critical studies of what Marco Polo reported and careful checking against known facts are giving the Venetian traveler a reputation for being a keen and intelligent observer.

#### Praised as Traveler

Lauding Marco as "the medieval Herodotus, the greatest traveler of the Middle Ages, and one of the greatest of all time," Dr. E. W. Gudger of the American Museum of Natural History sums up in the *Scientific Monthly* some of the medieval Chinese discoveries and customs that Marco reported and that we moderns have lately re-discovered.

"I can remember," writes Dr. Gud-

ger, "when four-masted schooners were new and so extraordinary that people went miles to see them."

But Marco Polo told of Chinese preparations for a voyage, and described thirteen ships, each of which had four masts and often spread twelve sails.

Making water-tight compartments is an ultra-modern device of ship building. But Marco tells carefully how the Chinese did it for their fifteenth century ships.

#### Taxicabs of Old China

The Chinese anticipated recent German experiments with paper clothing. They had fine summer clothing, said Marco, made of cloth from the inner bark of certain suitable trees.

Taxicabs thronged the streets of medieval Chinese cities. Marco described an infinite succession of these public carriages which seated six persons and were in constant request for ladies and gentlemen going on parties of pleasure.

Surely the individual drinking cup appeared after germs were discovered? But no, the Chinese had them. In the province of Maabar, Marco was impressed by seeing every man drinking from his own vessel, and nobody else's, and if a stranger lacked a cup, they would pour the drink into his cupped hands.

#### Spitting Taboo

Careless spitting was taboo. The nobles carried handsome little sputum cups. And as for coughing and sneezing precautions, those who waited upon the Great Khan at the table muffled their mouths and noses with fine napkins so that their breath might not taint dish or goblet.

Hybrid animals, paper money, fire alarms, gold teeth, and many another modern-sounding idea were gathered by Dr. Gudger from the latest comprehensive and scholarly editions of the now respected tales of Marco Polo. Both Marco and medieval China are getting a new deal, with greater world respect and prestige.

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