

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.

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#### 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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