

BOTANY-PHARMACY

# New Quinine Sources

Botanists searching the mountain forests of South America, on the wartime cinchona program, have turned up unexpected sources of this important drug.

► BOTANISTS searching the mountain forests of South America for quinine-yielding plants have turned up unexpected sources of this important drug, Dr. William Campbell Steere of the University of Michigan reports in *Science*, (Feb. 16).

Dr. Steere and Dr. F. R. Fosberg of the U. S. Department of Agriculture were the first two American botanists to go into the Andean uplands on the wartime cinchona program. They were followed by several others, with such success that the quotas set in 1942 have been exceeded and the parties are one by one returning home.

A number of surprises awaited the botanists when they pushed into the wilderness. One was the discovery that the genus cinchona does not have a monopoly on quinine production. Bark of a small tree species known as *Remijia pedunculata* was found to yield up to 3% of practically pure quinine sulfate. This species is abundantly distributed in the eastern range of the Colombian Andes and its foothills.

Another find of major importance was that a supposedly rare species, *Cinchona pitayensis*, is really fairly abundant in both southern Colombia and Ecuador. This species has bark also yielding about 3% of quinine sulfate in addition to other alkaloids of possible drug value.

A considerable number of races or strains of the "standard" cinchona tree, *C. officinalis*, were found in both Colombia and Ecuador. Most of them were low-yielding, but certain local races turned out to be "surprisingly rich" in quinine and other medicinal compounds.

Most of the quinine-yielding bark obtained during the past two years was brought out of Colombia and Ecuador, Dr. Steere reports. The best hunting-grounds used to be in Bolivia and Peru, but over-collection has wiped out some of the best cinchona stands in Bolivia, and the best remaining sources in Peru are so inaccessible that it was not economical to send collecting parties to them.

Dr. Steere gives much credit for the success of the cinchona program to the establishment of assay laboratories near

the sources of the bark. In the old cinchona collecting days, bark had to be sent on long voyages overseas before its quinine content could be estimated. This resulted in great losses in time, as well as in wild market speculation in bark, based on nothing more substantial than hope or guesswork, which of course was an economic waste. The assay laboratories in Bogota, Quito, Lima and La Paz thus saved much money, and (of even greater importance in the present emergency) they also saved a great deal of time.

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TYPOGRAPHY

## Scap of Parchment Has Arabic Block Print

► A DIMINUTIVE scrap of parchment in the Museum of the University of Pennsylvania has been discovered to be one of the few known examples of Arabic block print. This unique fragment lay hidden for over 30 years in the repositories of the museum without its extreme rarity being recognized.

In going through the papyrus collection of the museum, Dr. Giorgio Della Vida remembered that the process of printing from carved wooden blocks, which the Chinese invented and Gutenberg developed into printing with movable type, had reached the Moslem world long before it was known in Europe. Dr. Della Vida, formerly of the University of Rome and research associate in the Vatican Library, therefore recognized the inconspicuous bit of extra-thin parchment, not larger than two inches by one and a half, as an invaluable specimen of block printing.

It is the only example of Arabic block print known to be in America.

Except for one in Heidelberg, all the other examples are printed on paper. The Philadelphia print is on parchment, and was probably made during the fourteenth century.

The Chinese method of printing from wooden blocks never became popular among the Arabs. The cutting of the capricious curves of the Arabic script



**ARABIC BLOCK PRINT**—Possibly the only one of its kind in the United States, this bit of parchment is one of the few known examples of Arabic block print. It was recognized by Dr. Giorgio Della Vida, professor of Arabic and Semitics at the University of Pennsylvania, among the University's Museum specimens.

out of a hard wooden surface proved too toilsome and the results lacked attractiveness. After the middle of the fourteenth century its use was discontinued.

Arabic block printing was confined to short, cheap texts, consisting either of selections from the Koran or of prayers. All known Arabic block prints are of this type.

The print at the University of Pennsylvania Museum represents the top of a long, narrow scroll which was originally divided into several sections. A minute part of the heading of the second section is visible.

"There is no god but God," is printed in white letters on a black background at the top, followed by the beginning of a prayer. The letters are quite minute, and since they were cut on hard wood they lack the slender elegance of Arabic calligraphy.

Few specimens of these peculiar products of early printing have been preserved. But possibly others lie buried among the miscellaneous items of libraries and museums, awaiting identification.

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