



DUTCH

MAYA

NAVAJO

NEGRO

HAIR FOR MEASURING

Samples of European, Indian, and Negro hair ready to be prepared for the difficult task of quickly measuring breadth of single hairs. That hair of races differs in thickness, or breadth, has long been known, but difficulty of measuring breadth of enough single strands to obtain information of statistical importance has been so great that the subject has remained relatively obscure.

ARCHAEOLOGY

Enthusiastic Over Find Of Lost Incan Cities

Director of Peru's National Museum Declares Discovery Will Increase Understanding of Prehistoric Life

ENTHUSIASTICALLY hailing the importance of two lost Incan cities discovered 12,000 feet high among clouds in the Peruvian Andes, Dr. Luis E. Valcárcel, director of Peru's National Museum and authority on Incan archaeology, now visiting the United States, declares that the ruins greatly increase modern understanding of the prehistoric Incan Empire's mastery of life in high altitudes. He predicts more discoveries in this overgrown area.

The two cities discovered by Dr. Paul Fejos, leader of an expedition sponsored by Axel Wenner-Gren, reveal that a large population of the Incan Empire's Indians occupied a network of cities served by road systems and fed from irrigated farms in a forbidding region now looked upon as rank wilderness. So Dr. Valcárcel pointed out in exclusive comment to Science Service. The noted Peruvian archaeologist is conferring with Yale University scientists on problems of clarifying America's ancient past. Dr. Wendell Bennett, Yale archaeologist who is noted for discoveries in Peru, expressed

agreement with Dr. Valcárcel that the ruins add much to knowledge of Incan architecture.

Both of the new-found cities resemble the Incan city of Machu Picchu, discovered by a Yale University expedition led by Dr. Hiram Bingham in 1911, that Dr. Valcárcel concludes that the three cities were beyond doubt contemporary.

Machu Picchu has been thought of as a lonely and isolated retreat built in the dawn of the bold Incan adventure of conquering several million other Indians, and again occupied by women, fleeing the Spaniards in the last days of the Incan Empire. Now, Machu Picchu is blended into a more social picture. Dr. Valcárcel finds its plan, windows, wall niches, stone masonry and pottery goods all similar in type to those of the new-found cities. And among the many stone-paved roads leading out from the new-found cities one road runs to Machu Picchu. In fact, Dr. Bingham's map of the jungle and rock wilderness around Machu Picchu may show this same road, now traced at its farther end.

Excavations and photographs at the new cities contribute greatly to knowledge of the Incan road systems for runners and messengers, says Dr. Valcárcel. Already, the Incas are famous for their prehistoric efficiency in building smooth roads and organizing relay runners to carry messages and goods with impressive speed and service. Now, it appears that Incan efficiency functioned at high altitudes, despite mountain grades and breathing problems. That roads about ten feet wide, extending from the ruined cities are cut in some sections through bed rock impresses Dr. Valcárcel. Stone forts are planted at intervals along the way.

Also impressive to his expert eye are the many stone faced agricultural terraces and irrigation canals, which he pronounces "astonishing at that altitude."

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PHYSICS

Electrons in Glass Houses Get Privacy by Alloy

ELECTRONS that live and work in "glass houses," radio tubes, X-ray tubes and all the other such electronic devices used in science and industry, will have new privacy from invading air molecules with a new alloy.

Consisting of a mixture of iron, nickel, cobalt and manganese, it was devised by Howard Scott, Westinghouse research engineer, who has just been granted a U. S. Patent for his invention. It is known as "kovar."

Several of the tubes sealed by Mr. Scott more than seven years ago, during the early development work on kovar, were opened recently and found to be as free from air contamination as when they were sealed, investigators said.

"Glass and metals expand when heated and shrink when cooled," Mr. Scott explained. "But each kind of glass and each different metal expands at its own particular pace. This rate is called the coefficient of expansion."

"In kovar we found just the right combination of many metals to make an alloy with the same coefficient of expansion as the type of glass we were using. Therefore, when these two substances are fused together under heat and allowed to cool, there is no strain between metal and glass surfaces."

The alloy can also be readily machined and rolled to form parts of various shapes, it was said.

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