Radar to Hunt Treasure in a Pyramid

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WASHINGTON, April 22 — A new effort to locate a treasure-laden burial vault within or under the gigantic Khefren pyramid is being undertaken by the Stanford Research Institute, using a rock-penetrating radar.

The effort follows an eight-year attempt to probe the monument through observations of cosmic rays penetrating its massive limestone blocks from all parts of the sky. Had there been a cavity, it was assumed, it would have shown up as a "bright spot" in which fewer of the rays had been absorbed than those arriving from other directions.

However, Dr. Luis W. Alvarez, Nobel laureate in physics from the University of California at Berkeley, who conducted the search in collaboration with Egyptian scientists, said that continued efforts to probe all corners of the pyramid had revealed no such chamber.

The Khefren pyramid is one of the three famous pyramids at Giza, about three miles southwest of Cairo.

Gold and Cosmic Rays

It is conceivable, Dr. Alvarez said, that a chamber exists so crammed with gold that it absorbs as many cosmic rays as the solid limestone. If so, he told a press briefing this noon, the gold would produce an "enormous signal" in the Stanford radar. The latter, he added, will also be able to look beneath the pyramid where the cosmic ray experiment was blind.

The Stanford Research Institute of Palo Alto, Calif., will continue under the same arrangement with the Egyptian authorities, which made possible the cosmic ray observations, Dr. Alvarez said. Observations should begin within a few weeks, using short-wave radio emissions, a few meters in length, that should penetrate a few hundred feet below the pyramid.

They will also be directed upward from the chamber under the pyramid from which the cosmic ray observations were made. While this may have been the burial chamber, the fact that a treasure-laden burial vault was found within the heart of the nearby Cheops pyramid has led to speculation that one might also be within the Khefren pyramid.

7,500 Hundred Years

All three of the great pyramids at Giza were built some 45 centuries ago. According to Dr Alvarez, the Caliph Mamoon in the 10th century, seeking treasure, ordered a tunnel dug through the heart of the Cheops pyramid, which is the largest.

This would have missed the vault in its core, Dr. Alvarez said, had those working inside the pyramid with a battering ram, not heard a thundering nearby. They guessed that it was a dislodged stone bouncing down a sloping shaft. A right-angle turn by the tunnelers led them to the opening.

It was this discovery, 10 centuries ago, that lay at the basis of hopes for a similar find in the Khefren pyramid, using devices more sophisticated than battering rams. In 1969 Dr. Alvarez said that he had found no evidence of a chamber in the upper part of the pyramid. Today he reported negative results for the rest of its volume.

The American Physical Society is holding its spring meeting here this week with most of its sessions at the Sheraton Park Hotel. At the same time, the Optical Society of America is meeting at the nearby Shoreham hotel.

At the latter session Dr. Maurice Françon of the Institute of Optics at the University of Paris told of a powerful new way of measuring the angular width of stars. Even the nearest stars are too distant for the width of their images to be measured directly.

The angular width of several stars was obtained 40 years ago by bringing together separate beams of light from each star so that the light waves could interfere with one another, a process known as interferometry.

This process was applicable only for the nearest, brightest stars. In the new method, the star is photographed rapidly through a filter that permits passage of only one wave length.

The result is a cluster of spots, representing various positions of the stellar image as it danced because of atmospheric turbulence. The film is then illuminated by the ordered, single-wave length light of a laser, producing a pattern known as a Fourier transform. The nature of this pattern indicates the width of the light source.

Using the world's most powerful operating telescope, on Mount Palomar, A. Labeyrie has obtained angular widths for about 100 stars, down to magnitude 9, and to widths of one-tenth of a second of arc. A check of astronomers today revealed a widespread hope that this would eventually become an important tool of their trade.