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The Washington Post

December 30, 1983, Friday, Final Edition
Correction Appended

Possibly as Large as **Jupiter**; Mystery Heavenly Body Discovered

BYLINE: By Thomas O'Toole, Washington Post Staff Writer

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A heavenly body possibly as large as the giant planet **Jupiter** and possibly so close to Earth that it would be part of this solar system has been found in the direction of the constellation Orion by an orbiting telescope aboard the U.S. infrared astronomical satellite.

So mysterious is the object that astronomers do not know if it is a planet, a giant comet, a nearby "protostar" that never got hot enough to become a star, a distant galaxy so young that it is still in the process of forming its first stars or a galaxy so shrouded in dust that none of the light cast by its stars ever gets through.

"All I can tell you is that we don't know what it is," Dr. Gerry Neugebauer, IRAS chief scientist for California's Jet Propulsion Laboratory and director of the Palomar Observatory for the California Institute of Technology, said in an interview.

The most fascinating explanation of this mystery body, which is so cold it casts no light and has never been seen by

optical telescopes on Earth or in space, is that it is a giant gaseous planet as large as **Jupiter** and as close to Earth as 50 trillion miles. While that may seem like a great distance in earthbound terms, it is a stone's throw in cosmological terms, so close in fact that it would be the nearest heavenly body to Earth beyond the outermost planet Pluto.

"If it is really that close, it would be a part of our solar system," said Dr. James Houck of Cornell University's Center for Radio Physics and Space Research and a member of the IRAS science team. "If it is that close, I don't know how the world's planetary scientists would even begin to classify it."

The mystery body was seen twice by the infrared satellite as it scanned the northern sky from last January to November, when the satellite ran out of the supercold helium that allowed its telescope to see the coldest bodies in the heavens. The second observation took place six months after the first and suggested the mystery body had not moved from its spot in the sky near the western edge of the constellation Orion in that time.

"This suggests it's not a comet because a comet would not be as large as the one we've observed and a comet would probably have moved," Houck said. "A planet may have moved if it were as close as 50 trillion miles but it could still be a more distant planet and not have moved in six months time."

Whatever it is, Houck said, the mystery body is so cold its temperature is no more than 40 degrees above "absolute" zero, which is 456 degrees Fahrenheit below zero. The telescope aboard IRAS is cooled so low and is so sensitive it can "see" objects in the heavens that are only 20 degrees above absolute zero.

When IRAS scientists first saw the mystery body and calculated that it could be as close as 50 trillion miles, there was some speculation that it might be moving toward Earth.

"It's not incoming mail," Cal Tech's Neugebauer said. "I want to douse that idea with as much cold water as I can."

Then, what is it? What if it is as large as **Jupiter** and so close to the sun it would be part of the solar system? Conceivably, it could be the 10th planet astronomers have searched for in vain. It also might be a **Jupiter**-like star that started out to become a star eons ago but never got hot enough like the sun to become a star.

While they cannot disprove that notion, Neugebauer and Houck are so bedeviled by it that they do not want to accept it. Neugebauer and Houck "hope" the mystery body is a distant galaxy either so young that its stars have not begun to shine or so surrounded by dust that its starlight cannot penetrate the shroud.

"I believe it's one of these dark, young galaxies that we have never been able to observe before," Neugebauer said.

"If it is, then it is a major step forward in our understanding of the size of the universe, how the universe formed and how it continues to form as time goes on."

The next step in pinpointing what the mystery body is, Neugebauer said, is to search for it with the world's largest optical telescopes. Already, the 100-inch diameter telescope at Cerro del Tololo in Chile has begun its search and the 200-inch telescope at Palomar Mountain in California has earmarked several nights next year to look for it. If the body is close enough and emits even a hint of light, the Palomar telescope should find it since the infrared satellite has pinpointed its position.

LANGUAGE: ENGLISH

CORRECTION-DATE: December 31, 1983, Saturday, Final Edition

CORRECTION: The distance from earth of a mysterious object in space was reported incorrectly in some editions yesterday. The correct figure is 50 billion miles.

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