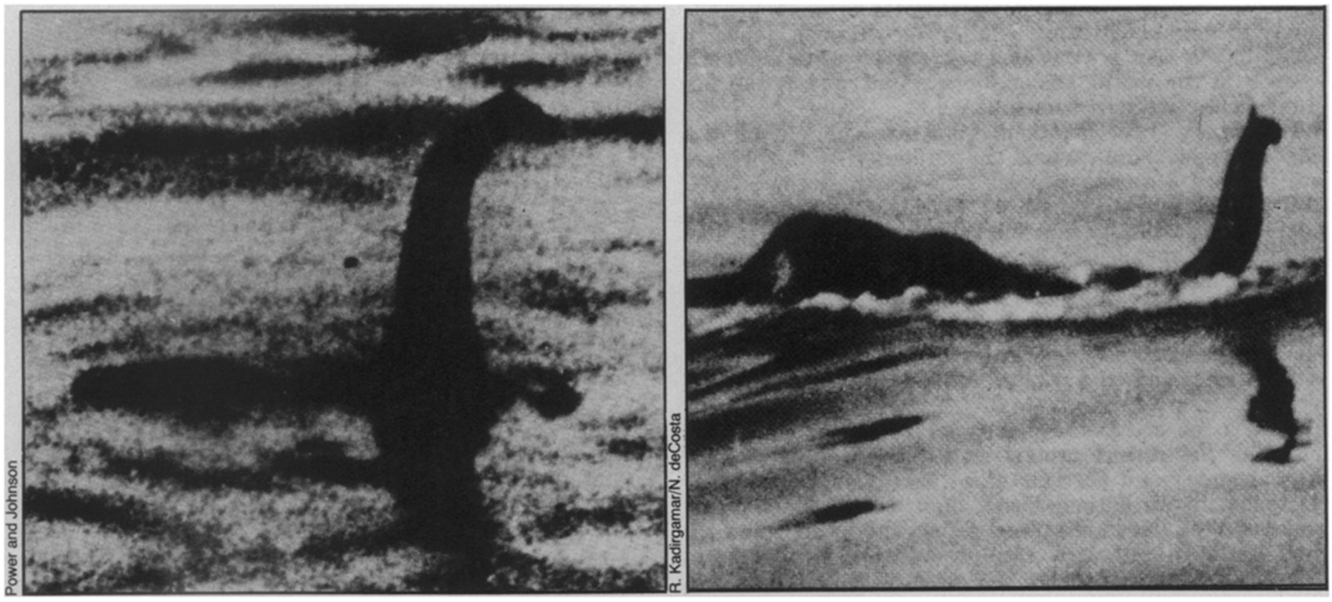
Will the Real Nessie Please Stand Up?



The famous 1934 photograph of Nessie taken by Robert K. Wilson (left) bears a striking resemblance to a picture taken by R. Kadirgamar (right) showing an elephant in the waters off Sri Lanka.

As long as Nessie refuses to swim up and be counted, theories will abound on how to explain the many sightings of the Loch Ness monster. The latest conjectures range from seeing an optical illusion to watching an elephant swim. An elephant?

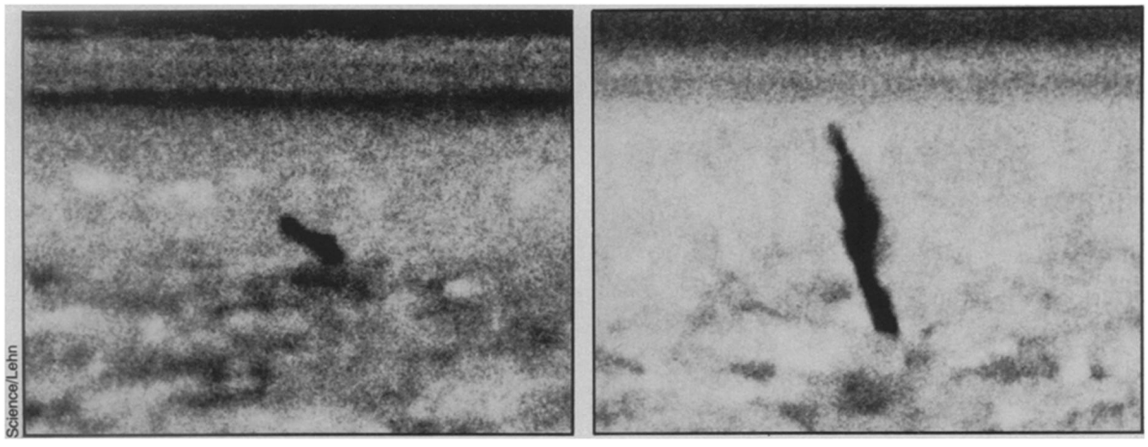
BY MARCIA F. BARTUSIAK

Poor Nessie. By now, she must be having an identity crisis. Some consider her merely an otter out for a good day's swim in Scotland's Loch Ness. Others are sure she's a long-necked reptile, the survivor of an ancient species trapped in the cold-water lake.

Such legends of lake (and sea) monsters have been handed down in folklore for generations. As far back as A.D. 565, St. Columba reportedly saw a strange creature swimming in the Loch Ness, while in Canada it is the monster Manipogo who rules the waters of Lake Manitoba. Many sightings have been weeded out as nothing more than standing waves, birds or debris floating atop the water. But now more possibilities have been added to the list. One suggests that a famous Nessie sighting was actually a swimming elephant. An elephant in the Loch Ness? This definitely needs an explanation.

Donald Johnson of the University of Illinois has been studying how elephants swim. He's trying to explain how mammoths during Pleistocene times could have crossed over from the U.S. mainland to the Northern Channel Islands off the coast of Southern California. Since geological evidence suggests that a complete land bridge did not exist, swimming was the next alternative.

In his research, Johnson came across reports of long-distance swims by elephants (close relatives of the extinct mammoth) off the coasts of such countries as India, Bangladesh and Kenya. His research colleague, Dennis Power, director of the Santa Barbara Museum of Natural History in California, noticed that one of the photographs taken by R. Kadirgamar, depicting an elephant in the waters off Sri Lanka, looked very familiar. It had a striking similarity to the famous photograph of Nessie taken by London gynecologist Robert Kenneth Wilson in 1934, the elephant's trunk and partially submerged head forming the long neck and humped body of so many monster sightings. Power says that many other people after seeing



A stick of wood takes on mysterious shapes because of atmospheric refraction. Are these the monsters people have seen?

the elephant photo on his desk had asked, "Where did you get the picture of Nessie?"

In describing the photographic similarity in the August 2 NEW SCIENTIST, Power and Johnson also point out that many verbal reports of the Loch Ness monster seem to vaguely describe an elephant. They note how many people say that the monster resembles an upturned boat in water, the exact description of a swimming elephant's back.

But how could an elephant even get into the Loch Ness? Power and Johnson admit they haven't a clue and stress this obviously doesn't explain all the sightings. They do suggest the very remote chance that a traveling circus may have released the elephants into the Loch to bathe. In talking with SCIENCE NEWS, Power jokingly said that maybe they should apply for a federal grant to go over to Scotland with a ton of peanuts. If elephants weren't really swimming in the Loch, the two researchers said that "one must consider the possibility that a falsehood has been perpetrated and that the original picture by Wilson is a scene from another location." This, however, would be against all the rules in the game of Nessie hunting (not to mention spoiling all the fun).

If you don't believe in swimming Scottish elephants, a Canadian scientist offers another explanation for many monster sightings — atmospheric image distortion. This is the situation in which a vivid imagination combined with the right atmospheric conditions can lead to a strong case of mistaken identity. "The one element missing from all these reports ... is any consideration that the observed or photographed evidence might have been optically distorted by the atmosphere. It may well be that many sightings of monsters can be explained as the sighting of a distorted and hence unrecognized image of a familiar creature or phenomenon," says Waldemir H. Lenn in the July 13 SCIENCE.

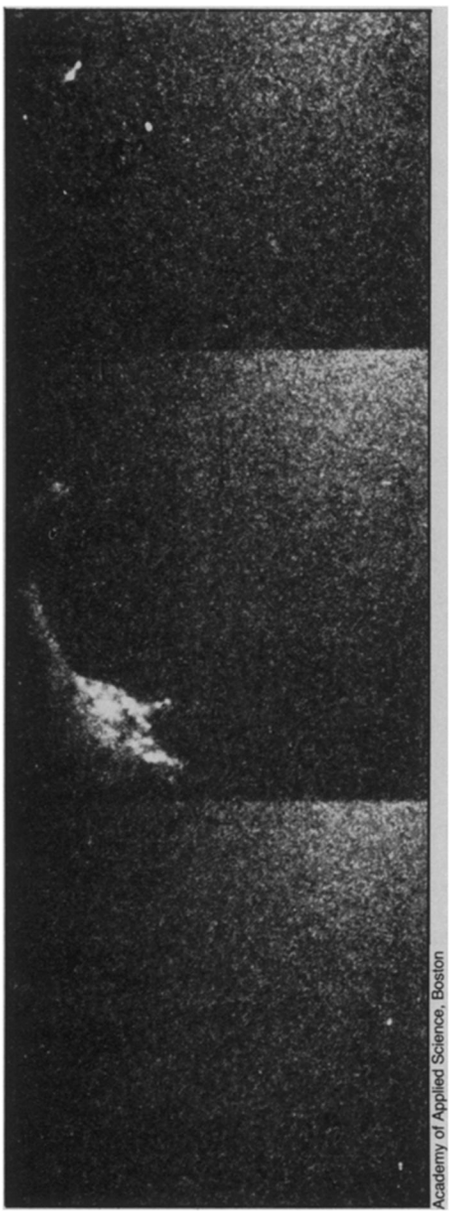
For anyone who has observed water rippling at the end of a hot road, it's easy to understand that seeing is not always believing. The bending of light rays in the atmosphere can lead to many interesting distortions.

Horizontal light rays, for instance, are refracted slightly downward as they pass from rarefied air to lower and denser layers. If a temperature inversion (the air at higher elevations warmer than the air next to the surface) is present to steepen the density gradient near the earth's surface, the effect is magnified. Under the right weather conditions, such a refraction can play some interesting tricks on the mind's eye. Distant objects may appear grotesquely elongated; others beyond the horizon could be lifted into view (perhaps the explanation for those fanciful medieval stories of castles floating in the air).

Lehn, a professor of electrical engineering at the University of Manitoba, has long been interested in the image distortions that can result from refraction. "Every time I go out, I keep my eyes open for new effects," Lehn told SCIENCE NEWS. "I have seen refractive effects in many open spaces, especially over water."

One of Lehn's most interesting sightings occurred at Lake Winnipeg during a warm April afternoon two years ago. While the air temperature at the lake hovered at a comfortable 25°C, the frozen lake surface was still near 0°C. Calm air coupled with the extreme temperature differences permitted a strong conduction inversion to develop, perfect conditions for image distortion.

Lehn took some pictures of a stick protruding from the ice about a mile from the camera. At one moment, the stick appeared kinked and flattened. Three minutes later, it looked entirely different. It now curved backward and was vertically distended. "They are ... not unlike some of the photographs given as evidence for the existence of lake monsters," reports Lehn. In the blink of an eye, a piece of wood had become the head of a lake monster out for a breath of fresh air.



This underwater sighting was taken by strobe flash at a depth of 35 feet. Some claim it shows "Nessie" to be a long-necked reptile with diamond-shaped flippers.

Perhaps many other sightings of lake monsters were merely familiar objects that became unrecognizable with atmospheric distortion. Lehn says a great many of the reports have described conditions that were "ideal for generating distorted images." He points out that over three-quarters of the Loch Ness sightings were made between May and August, when the lake temperature was still much lower than the air temperature. More than 80 percent described the Loch Ness as being calm or having only small ripples. These are the same conditions that led to the distorted images in Lehn's photographs.

How does one account for monsters moving across a lake? Lehn suggests that the inversion layer may be in slow motion with wavelike undulations so that "the image can grow, shrink, or move about ... [imparting] a sinuous appearance to an otherwise straight horizontal object."

Lehn is speaking from personal experience. In a footnote to his article, he described a mirage he once saw during a hot summer day at Lake Manitoba. For a few minutes, a thin, horizontal black strip appeared on the surface of the lake about a mile away from him. Was this Manipogo, the lake's infamous black serpent? No, says Lehn, merely an optical illusion created by atmospheric refraction. He hopes that anyone reporting new sightings of mysterious sea creatures will also include a rundown of the air and water conditions so that atmospheric refraction can be acknowledged or ruled out as the cause.

But Nessie lovers, take heart. The Canadian researcher is not attempting to cast a shadow on all forms of monster-hunting. Lehn's hypothesis would only apply to sightings made at a lake's surface, not underwater. Referring to the intriguing photographs taken at Loch Ness four years ago, Lehn stressed that it wasn't his aim "to discredit the existence of yet unidentified animals or species, for there is impressive evidence to the contrary from sonar data and underwater photography."

That underwater photography was done by a group of scientists and amateur zoologists associated with the Boston-based Academy of Applied Science. Led by lawyer Robert Rines, the team had arranged for a fresh attack on the Nessie legend this summer. This time they were going to use two dolphins equipped with cameras on their backs to locate the elusive inhabitant (SN: 3/31/79, p. 200). Once a dolphin approached a "monster-sized" object, a special sonar system was to activate the camera. During the preparations, however, one of the dolphins died, putting the project on the back burner. But they vow they'll be back. It's hard to give up on a 1,400-year-old controversy. □