

Off a Shelf in Manhattan, a Pre-Human Skull



HOMO COLUMBUS? A fossil skull cranium, believed to be *Homo erectus*, with the face and upper jaw reconstructed. It was found by Henry Galiano, right, in his shop, Maxilla and Mandible Ltd.

By JOHN NOBLE WILFORD

An intriguing fossil skull, presumably from a *Homo erectus* and possibly a revealing piece of evidence for understanding human evolution, has been found not on a parched hill in Africa or along a river in Java, but at a cozy little shop on the Upper West Side of Manhattan.

However the skull got there, and this part of the story is murky, paleoanthropologists concluded last week that it is a genuine specimen from Indonesia and could be critical in determining the place of the *Homo erectus* species in East Asia on the human family tree. Learning that is central to a scholarly controversy over where and how modern humans, *Homo sapiens*, evolved.

The fossil arrived in March at Maxilla and Mandible Ltd., a Colum-



Elizabeth Lippman for The New York Times

bus Avenue shop whose window display of bleached bones, mounted insects, animal sculpture and other natural history curiosities has long made it stand out among the neighboring toy stores and boutiques. It was delivered, the shop owner said, by a mysterious man who said he represented the estate of a collector of curios. But the shop owner, in cleaning the material, recognized the skull as possibly an ancient and valuable specimen.

As scientists later determined, the dark gray skull apparently belonged to a young male, probably in his 20's, but experts who examined it inside and out were struck by some puzzling characteristics. The individual's brain was small, about half the size of *Homo sapiens* but within the range for *Homo erectus*. Yet he had a humanlike high forehead, not the sloping kind typical of *Homo erectus*

and other early hominids.

A cast made of the inside surface of the skull revealed the brain's configuration, which bore some resemblance to *Homo sapiens* brains. An apparent swelling in one region of the brain, scientists said, suggested that the *Homo erectus* was developing the potential for language and speech.

"It's a very interesting specimen because it's not like any other *Homo erectus* we know from Indonesia or anywhere else," said Dr. Eric Delson, a paleoanthropologist at Lehman College of the City University of New York, who led the investigation. "Of course, it's only one individual, but it could represent a distinctive population. We just don't know."

When he learned of the discovery, Dr. Philip Rightmire of the State

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University of New York at Binghamton, a specialist in *Homo erectus* research, said: "Any new specimen is important. There are just a handful of skulls from Indonesia."

Until this decade, paleoanthropologists generally divided the lineage of genus *Homo* into three successive species. *Homo habilis* appeared about 2.5 million years ago, at the time of the first evidence of stone toolmaking. *Homo erectus*, beginning about 1.8 million years ago, was the first to leave Africa, spreading across Eurasia as far as China and Indonesia. The species was once thought to be the direct ancestor of *Homo sapiens*.

Now scientists are not so sure. Other distinct species may have emerged and overlapped between *Homo erectus* and *Homo sapiens*. Genetic studies point to anatomically modern humans' appearing first in Africa some 100,000 years ago from descendants of the *Homo erectus* population that remained there. The African branch of *Homo erectus* is now usually labeled *Homo ergaster* to distinguish it from the Asian species. If modern humans sprang from Africa, then the Far East *Homo erectus* was probably an evolutionary dead end, though a few scientists still think otherwise.

The rounded shape of the new skull and the inferred structure of its brain, the examining team said, at least raised the question of whether the *Homo erectus* of Indonesia was, in fact, evolving toward a more modern human species. It is an intriguing thought, but the scientists said it was premature to venture further along this line of speculation.

For the time being, how the skull came into their eager hands is mystifying enough.

The story seems to have begun in 1997 near the village of Poloyo on the Solo River of Central Java, in Indonesia. The region has yielded several hominid fossils around Sambungmacan, Ngandong and Trinil, including the first *Homo erectus* bones discovered by the Dutch physician Eugène Dubois in 1891 and originally named



The Solo River region has yielded important fossils of humanoids.

Java Man. Paleontologists said buyers often visit the area on the lookout for fossil discoveries that might fetch a handsome price in the bone trade at Jakarta or overseas. Scientists say they believe a farmer picked up this new skull and found a buyer who paid cash.

Somehow the skull — an almost complete cranium, but missing the upper and lower jaws — found its way in March to a shop that just happened to be named for those missing parts. Maxilla and Mandible also happens to lie at 451 Columbus Avenue between 81st and 82d Streets, half a block north of the American Museum of Natural History, and has an owner, Henry Galiano, who knows some of the scientists there.

As Mr. Galiano recounted this part of the story, a man showed up with a car loaded with rocks, minerals and tribal curios from Indonesia. The man said he was disposing of material from the estate of a collector. People like this often appear at the shop. Mr. Galiano said he had never seen the man before or since and was not sure of the identity of the estate. But he bought the lot, he said, and only then recognized the skull as

early hominid. It was covered in dirt, perhaps to disguise its true nature.

The next time Mr. Galiano saw Dr. Delson walking by the shop, he rushed out with an invitation: "Want to see something really interesting?"

Before he started Maxilla and Mandible 16 years ago, Mr. Galiano worked in the paleontology laboratory at the American Museum and got to know Dr. Delson, who is also on the research staff there. Mr. Galiano said that he often turned over items of potential scientific value to museums, especially anything related to hominids.

Dr. Delson and several colleagues soon realized that this seemed to be an advanced *Homo erectus* or an archaic *Homo sapiens*. And their inquiries to Indonesian paleontologists produced an exchange of information and illustrations based on an earlier examination in Jakarta. This showed that the Poloyo skull and the one from the Manhattan shop were one and the same. The scientists and Mr. Galiano agreed that the specimen should be returned to Indonesia.

Dr. Teuku Jacob, a paleoanthropologist at Gadjah Mada University in Jogjakarta, Indonesia, visited New York last week to confirm the skull's identity. This might have been impossible if a dealer in Jakarta had not invited an Indonesian physical anthropologist, Doedhi Hartono, to examine it and publish an illustration and brief description.

"Everything matches," Dr. Jacob said of the specimen and the published description. "I am very certain this is it."

Dr. Jacob said it was his understanding that the skull was sold to American tourists and then disappeared, a not unusual fate. "Almost all Indonesian fossils have strange postmortem biographies," he said.

Dr. Jacob joined American paleontologists in analyzing the fossil and the brain cast obtained from the skull's interior surface. They are preparing papers on their findings for publication as soon as possible.

Studying the actual skull and casts, the researchers noted that the cranial bone was thick and the brow ridges well developed, both charac-

teristics of *Homo erectus*. The thickness and roughness of certain points on the skull, indicative of the individual's muscle development, were the main clues that this was probably a male. The clearly defined sutures in the skull cap, where bone segments fused, were apparently those of a young person.

Douglas Broadfield, a graduate student at City University, said the braincase examination revealed a high degree of cerebral asymmetry, a differential development of the two sides of the brain, that seemed advanced for *Homo erectus*. It also showed a bump in what is known as the Broca cap or area of the brain, the seat of language capability in modern humans. The combination of asymmetry and a Broca's cap, he said, was rare in *Homo erectus*.

"This is not to say this guy could speak like a modern human," Mr. Broadfield said. "But the potential is there for some higher processing, some type of communication cognition, that we don't see for other *H. erectus* specimens."

Dr. Ralph Holloway, a specialist in paleoneurology at Columbia University, is making a more detailed study of the brain case.

Dr. Carl C. Swisher 3d of the Berkeley Geochronology Center in California will be analyzing sediment found embedded inside the skull, which could yield chemical traces of the specimen's apparent age. Dr. Delson's team said the skull could be anywhere from 100,000 to 1 million years old.

At the Maxilla and Mandible shop last Monday, Mr. Galiano formally presented the skull as a gift to Dr. Jacob for its return to Indonesia. The shop owner would not estimate how much money his generosity might have cost him, though some paleontologists speculated that the skull might have commanded up to \$500,000 on the open market.

"I have a good relationship with scientists, and that relationship is more important than the loss of a few dollars," Mr. Galiano said. "Something like that skull should not be in private hands, but in a proper institution in its proper country."