

# Science News

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Incorporating Science News Letter

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**COVER:** "Flying Horse of Kansu," a Han Dynasty bronze figurine from the second century A.D. One of the "celestial" war horses brought to China from Turkestan, the figure's hoof grazes a swallow in flight. It is part of an exhibition of antiquities recently discovered by the People's Republic of China that opened in Washington Dec. 13. See p. 395. (Photo: John H. Douglas)

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## Science in 1974

It was an eventful year in science, as even a glance at the review of important science news stories of 1974 that begins on page 402 reminds us. To pick just a few examples, starting arbitrarily at the outer reaches of nature's world, objects larger than any previously known in the universe were found by radio astronomers, four new interstellar molecules were discovered, and a pulsar was identified for the first time to be of a binary star system. In our own solar system, scientific space probes passed by Venus, Mercury twice, and the polar regions of Jupiter, greatly expanding our understanding of those planets. A 13th moon of Jupiter was discovered, and the visit of the Comet Kohoutek proved to be an extraordinary scientific treasure for the scientists studying it with instruments, despite being somewhat of a flop for the rest of us who had expected a spectacular visual show.

On our own planet, scientists dived in research submarines down to the rift valley along the Mid-Atlantic Ridge, the most extensive geographical feature on earth, and saw firsthand the jumbled terrain where plates of the earth's crust are slowly separating. They also determined that rocks found in Minnesota are 3.8 billion years old, as old as the oldest previous rocks found in West Greenland.

In physics, experimentalists found conclusive evidence for the existence of neutral weak currents. Then, with drama and suddenness unseen in physics in many years, experimental teams unexpectedly discovered two new heavy particles that set the world physics community buzzing with excitement. The repercussions of those discoveries are still being felt and assessed as the year comes to a close.

In chemistry, nuclear chemists at Berkeley synthesized element 106, and felt optimistic that further extension of the periodic table would be accomplished in the coming years.

In life sciences research, the "off" and "on" switches for function of an artificial gene were synthesized, an animal cancer virus was for the first time used to try to transfer immunity to human patients, the chemical structure of an important master sex hormone was deciphered, and a very interesting advance in restoring vision to certain blind people was reported, just to name a few achievements.

In anthropology-archaeology, a number of interesting finds were reported. Perhaps the most important was the discovery in northern Ethiopia of fossil jaws and teeth belonging to the genus *Homo* and apparently being between 3 million and 4 million years old.

One could go on recounting further events in science in 1974, but that is the purpose of the "Science News of the Year" section in this issue. What this all brings to my mind is a conversation with some friends several months ago. One was expounding on his view of the uncertain and even depressing state of the world today, the whole coterie of political and economic news that fills our daily newspapers and our evening TV newscasts. It was a sorry list. The other friend asked if there wasn't some area of national endeavor that one could point to with pride. "Yes!" the first exclaimed. "Science! Many exciting things are happening in science. It is very lively today, with great intellectual ferment in many fields."

He may have been overly pessimistic in his assessment of world affairs (and maybe not), but I don't think he was unjustifiably optimistic about the degree to which our understanding of nature in many areas of basic science is advancing. The continuing intellectual process of discovery that science is, despite the many criticisms that can be made, provides a refreshing, and even at times, inspiring, respite from the daily events that necessarily and often disagreeably assault our senses.

By this I don't mean to imply that science is a diversion. Far from it. It is, and should be, an integral part of our culture. The quest to understand nature is an inseparable component of our humanity.

Also note that up until now I have been talking only about one side of science, the purely intellectual aspect. The other side, where science interacts with society, is flourishing too. A glance at the year-end review sections on environment, energy, resources, and science and society makes abundantly clear, for anyone who might have doubted, that scientists are involving themselves heavily in the great practical and moral issues and problems of the day. Unfortunately, those problems do not prove easily susceptible to tools of the research laboratory alone.

—Kendrick Frazier