

# SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication  
Volume 138, No. 23, December 8, 1990

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SCIENCE NEWS (ISSN 0036-8423) is published weekly on Saturday, except the last week in December, for \$34.50 for 1 year or \$58.00 for 2 years (foreign postage \$6.00 additional per year) by Science Service, Inc., 1719 N Street, N.W., Washington, D.C. 20036. Second-class postage paid at Washington, D.C., and additional mailing office. **POSTMASTER:** Send address changes to SCIENCE NEWS, 231 West Center Street, Marion, OH 43305. Change of address: Four to six weeks' notice is required — old and new addresses, including zip codes, must be provided.

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Editorial and Business Offices:  
1719 N St., N.W., Washington, D.C. 20036  
(202-785-2255)

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Subscription Department:  
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### 360 Snakebite Succor

Cover: Tricked into attacking a less-than-tasty target, this rattlesnake releases a potentially deadly dose of venom. More than 100 proteins endow the toxin with its tissue-dissolving and nerve-stunning properties. For many snakebite victims, the only chance for relief — and in some cases survival — depends on rapid treatment with commercially produced antivenins, which carry their own array of risks. Scientists are now experimenting with new antivenins that appear more effective and less dangerous. (Photo: Ron Garrison/San Diego Zoo)



### 364 Bleached Reefs

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## Letters

### Earlybirds

"Chinese bird fossil: Mix of old and new" (SN: 10/20/90, p.246) makes a mountain of a molehill. These roughly 135-million-year-old remains from the Lower Cretaceous of China are but a few million years older, if at all, than *Ambiortus* from the Lower Cretaceous of Mongolia. The ages of both can be questioned, but they are as little as 5 to 8 million years apart, and possibly coeval through their geologic ranges.

*Ambiortus* was described by Kurochkin in 1982, and I studied the specimen in Moscow. It was a powered flier with a keeled sternum and the flight apparatus of a modern bird. The carpometacarpus was fused, but it had a third clawed phalanx on the major digit of the wing; modern birds typically have only two phalanges.

You quote paleontologist Paul C. Sereno as stating that the Chinese bird "is the first bird with the capacity for a modern flight stroke."

Yes, but the genus may have flown in the same trees with *Ambiortus*.

You further state, "Many paleontologists believe *Archaeopteryx* could not fly well, and they envision the creature flapping its wings while jumping after insects."

These "many" should study the wing of *Archaeopteryx*. It is, in profile, the typical elliptical wing of a modern woodland bird, exhibiting feathers unchanged even in microscopic detail during 140 million years. The flight feathers of *Archaeopteryx* have asymmetric vanes, curvature and a longitudinal furrow along the ventral side — all uniquely characteristic of modern flying birds.

Organisms' behavioral capabilities are usually orders of magnitude greater than can be demonstrated by simple biomechanical analyses. The good is oft *not* interred with their bones. When one considers the elliptical wing and feather characters outlined above, there are four derived flight features shared only by *Archaeopteryx* and modern flying birds. These

render the earliest bird arboreal, certainly not a terrestrial fly-swatter.

*Archaeopteryx* flew!

Alan Feduccia  
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### Keeping a cool head

"The Great Brain Drain" (SN: 10/13/90, p.232) is an excellent overview of Dean Falk's theory and the underlying physiological and anthropological mechanisms of brain-temperature regulation.

Finding an article in the same issue on the effects of clonidine on menopausal hot flashes ("Flushing out the mechanisms of hot flashes," p.229) is an amazing coincidence. Clonidine is efficiently used to cure rosacea, a common vascular dermatosis of the face. In such pa-

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