the effect on otters and on fisheries of continuing, modifying, or abandoning the otter-free zone.

Diver Steele hopes for a compromise that would leave the San Nicolas otters in place and create a smaller otter exclusion zone around key fishing areas. That approach, he says, might enable otters and commercial divers to coexist—at least for a time. "[The otters] are coming, and when they get there it's pretty much over for us," he says. "I know I'm going to lose, but I'm trying to lose as slowly as possible."

—GRETCHEN VOGEL

* Available at: www.r1.fws.gov/vfwo

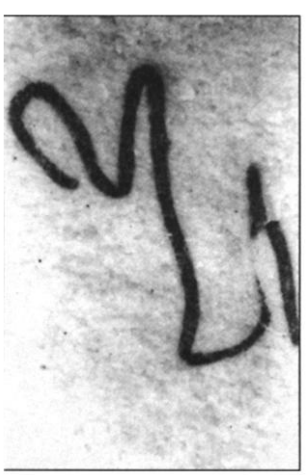
PALEONTOLOGY

Team Rejects Claim of Early Indian Fossils

NEW DELHI—A team of Indian paleontologists has failed to find evidence to support a 1998 paper that cast doubt on the earliest claimed dates for the origin of animals.

Two years ago an Indo-German team of paleontologists pushed back the origins of multicellular life by 400 million years to an astounding 1.1 billion years with the discovery of trace fossils in central India (*Science*, 2 October 1998, pp. 19, 80). The findings were immediately challenged by Rafat Jamal Azmi, an Indian paleontologist working at the Wadia Institute of Himalayan Geology in Dehra Dun. Writing in the *Journal of the Geological Society of India* (GSI), Azmi described finding small, shelly fossils (SSFs)—widely agreed upon as being 540 million years old—in a rocky layer in the Vindhyan Mountains that he claimed was laid soon after the sediments from which the trace fossils were discovered, casting doubt on the antiquity of the earliest animals. The discovery, if true, would have made the mountains much younger than previously thought.

CREDITS (TOP TO BOTTOM): C. CAIN; R. J. AZMI/WIHG



Forever young. Rafat Azmi says this algal ribbon fossil supports his claim, rejected by an Indian panel, of a more recent age for the Vindhyan mountain range in central India.

The society asked a team of more than a dozen distinguished Indian scientists to investigate Azmi's claim. The team reports in the June issue of the GSI journal (vol. 55, p. 675) "that the identification of fossils by R. J. Azmi is far from convincing, and that more detailed work [would be] necessary before the authenticity of the find is accepted." The report says that the presence of small, shelly fossils could not be confirmed either by its own team or by a panel assembled by the Geological Survey of India, whose members visited the site and collected samples that were "devoid of SSFs."

Shashi Bhushan Bhatia, a micropaleontologist and former professor at Panjab University in Chandigarh, led the GSI panel that investigated Azmi's findings and physically examined Azmi's fossils. He says that Azmi turned aside specific questions from the panel and "came up with new data" each time he was quizzed.

However, Azmi says that the two investigations "confirm the reproducibility of morphologically similar forms" and that he stands by his original finding. The controversy, he adds, is a "nonissue and an unfortunate fallout" resulting from "nonexperts [who] have poked their noses into a highly specialized field." He says the debate has fallen into the "realm of subjectivity" but that "there is no question of any contamination or misrepresentation" of the samples.

The geological society has no plans to publish anything more on the matter nor take any action against Azmi. "It will not serve any useful purpose to prolong this debate," says the journal's editor, M. Ramakrishnan, adding that "no further correspondence will be entertained." Azmi has protested the policy, however, and asked for an international panel of experts on small, shelly fossils to take another peek at his original sample.

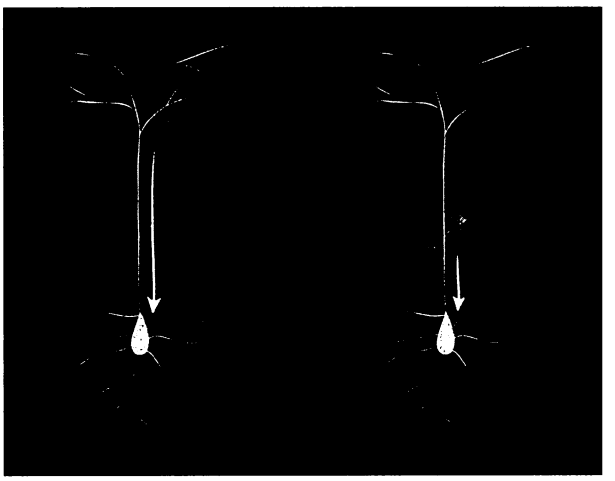
—PALLAVA BAGLA

NEUROSCIENCE

Synapses Shout to Overcome Distance

How do you make yourself heard if you are standing far from the fray? If you are a synapse, like a human, you shout. So says new research published in the September issue of *Nature Neuroscience,* answering a question that has perplexed neuroscientists for decades: namely, how a message delivered at a synapse far from the cell body—which must fade as it travels through the cell—can make itself heard above the din of messages picked up by close-in synapses.

Neurons receive signals sent by other neurons via long tendrils called dendrites that branch out from the neuronal cell body. The neuron fires, passing along its own message, only after the cell body receives and sums up some threshold level of dendrite-transmitted messages. Recent evidence has suggested that hinterland synapses do pick up useful signals, but no one knew quite how.



Speak up. Synapses far from the cell body send stronger signals than do those nearby.

Suspecting that distant synapses might speak with louder voices, neuroscientists Jeffrey Magee of Louisiana State University Medical Center in New Orleans and Erik Cook of Baylor College of Medicine in Houston, Texas, stimulated synapses locally and listened in as they fired. When this happens, the resulting signal is transmitted to the cell body by an electric current generated as ions surge in and out of the cell across its outer membrane. When the researchers measured this current, they found that the more distant the synapses, the stronger the signal. By the time the signals reached the cell body, those that traveled long distances sounded about as loud as those that originated nearby.

The finding "will open up a whole new field," says Daniel Johnston of Baylor College of Medicine, who adds that neuroscientists will want to know "How does the cell know [to build more powerful synapses at a distance]? And how does [the current gradient] develop?"

Magee says that many potential mechanisms could contribute to stronger signals from distant synapses. One possibility is that neighboring cells send more units of their chemical neurotransmitters when they communicate with farther-out synapses, although it's unclear how the neurons might be trained to do this. Alternatively, within the receiving dendrite, distant synapses may be literally bigger, studded with more of the receptors that detect incoming messages. Magee hopes to tease these possibilities apart, starting by using an electron micrograph to see whether far-flung synapses stretch out over a larger area than those close to the cell body.

—LAURA HELMUTH