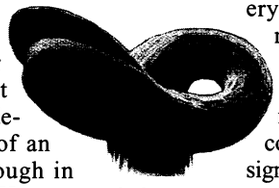
In light of the 1998 Nobel Prize for Physiology or Medicine for the discovery that nitric oxide is a signaling molecule in the cardiovascular system, a plant biologist points out that ethylene was recognized as a gas that affects growth in 1901 and as a signal molecule produced by plant cells in 1934. An Indian geologist reports a discovery that calls into question a recent finding of "more than 1-billion-year-old triploblastic animal trace fossils from...Chorhat Sandstone...of central India." Faculty at the recently sold Allegheny University of the Health Sciences express concern about their status. "Omic" research is discussed. A way to give scientific advice to the U.S. Department of State is proposed. And a Paraguayan rainforest tribe is declared not "vanished."

Plant Biology and the Nobel Prize

The awarding of the 1998 Nobel Prize in Physiology or Medicine to R. F. Furchgott, L. J. Ignarro, and F. Murad for their discoveries of nitric oxide as a signaling molecule in the cardiovascular system is, without question, a highly deserved recognition of an important breakthrough in biomedical research. However, the citation by the Nobel Assembly is one more testimony to the fact that pioneering discoveries in plant biology are not counted among the milestones in biological research. The Nobel Assembly asserts, with respect to nitric oxide, that "signal transmission by a gas that is produced by one cell, penetrates through membranes and regulates the function of another cell represents an entirely new principle for signalling in biological systems" and that "this was the first discovery that a gas can act as a signal molecule in the organism." In fact, ethylene, the simplest unsaturated hydrocarbon, was recognized by the Russian plant physiologist Neljubow in 1901 as a gas that affects plant growth, and by Gane in 1934 as a signal molecule produced by plant cells. Endogenously produced ethylene regulates many basic plant processes, ranging from seed germination to senescence. Most important from an agronomic aspect is the role of ethylene as inducer of fruit ripening and as a mediator of defense responses in plant pathogenesis. The enzymes that catalyze the biosynthesis of ethylene have been isolated and characterized biochemically. The genes that encode these enzymes have been cloned, and their regulation has been described (*1*). The ethylene receptor has been identifed, and the ethylene signal transduction pathway is being elucidated in detail (*2*). These discoveries serve as the basis for biotechnological applications, for example, the genetic engineering of fruits whose ripening can be controlled and whose spoilage is, thereby, prevented. The discovery of ethylene as an endogenous signal molecule should be recognized as the first demonstration—by plant biologists—that a gas can serve as a signal molecule in the organism and that this constitutes an entirely new principle for signaling in biological systems.



Ethylene response in seedling

CREDIT: J.R. ECKER, G. AHLSTRAND, AND J. HAYDEN

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Fossil Discoveries in India

A. Seilacher, P. Bose, and F. Pflüger (Reports, 2 Oct., p. 80) state that they have recorded more than 1-billion-year-old triploblastic animal trace fossils from the Lower Vindhyan (Chorhat Sandstone of the Semri Group) of central India. They suggest that the metazoa evolved much earlier (about 400 million years) than the previous records. For this claim, they have depended solely on the published radiometric ages from the Vindhyan succession. Although the age of the Vindhyan Supergroup remained an unsolved problem of Indian stratigraphy for more than a century because of inconsistent biostratigraphic evidence and radiometric dates, the age is generally accepted by most as Mesoproterozoic-Neoproterozoic (approximately 1400 to 550 million years old). I have just published a report (*1*) of the discovery of abundant, small, shelly fossils from the uppermost limestone and shale layers of the Rohtas Formation (Semri Group, Lower Vindhyan), the unit which conformably overlies (without apparent interruption of sedimentation) the track-bearing unit in the Son Valley. Because such small, shelly fossils represent a part of the "Cambrian explosion" (of approximately 545 million years ago), it was necessary that I propose a major chronostratigraphic revision for the Vindhyan succession. The revision suggests that the Lower Vindhyan Semri Group would range from Vendian (Vindhyan sedimentation begins with a "basal conglomerate") to early Cambrian and that the unconformably overlying Upper Vindhyan (Kaimur, Rewa, and Bhander groups, in ascending order) is of early Paleozoic age. To me, therefore, the occurrence of the triploblastic animal traces in the Lower Vindhyan is not a surprise, as they fall within the period of Ediacara biota. In fact, the finding of Seilacher and his team enlarges the scope of a better search for the remains of the Ediacaran soft-bodied animals in the Lower Vindhyan immediately below the appearance of the Precambrian-Cambrian boundary of small, shelly fossils.

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Dismissal of Faculty

The Allegheny University of the Health Sciences (AUHS) and eight of its hospitals in Philadelphia, all affiliates of the Allegheny Health Education and Research Foundation (AHERF) in Pittsburgh, are in the process of reorganization in the U.S. Bankruptcy Court in Pittsburgh (Random Samples, 9 Oct., p. 227). On 29 September, the court approved an offer by Tenet Healthcare, a for-profit corporation that owns 122 hospitals nationwide, to buy the eight hospitals and the university for $345 million. As part of the sale, Tenet outlined a plan for the reorganization of the university as a nonprofit organization, which will remain associated with the for-profit hospitals and managed by another university. Tenet will contribute up to in its first fiscal year and $33 million in addition in its second year. The infusion of capital by Tenet should be more than sufficient to cover deficits for the foreseeable future.

Nevertheless, a large number of tenured and nontenured faculty members have been informed that they would not be retained by the university. The administration refuses to discuss this issue with the faculty and has not indicated what the criteria are that were used to determine who is going to be retained and who is going to be dropped from the payroll. The administration has not followed the university bylaws regarding termination of faculty appointments and has not provided any mechanism for grievance by the hastily dismissed faculty. In fact, the uni-