A report published from the People's Republic of China in the *Shanghai Nature Journal* (1980) describes the "yellow leaf curl disease" of wheat as caused by a rickettsialike organism (RLO). This disease can be severe and was noticed for the first time in 1964 in the He Xi Zhou Long district in Gansu Province. Since 1964, the disease has been found in Henan Province as well as in the vicinity of Shanghai. The causal agent was studied by electron microscopy of ultrathin sections and the results reported by Wu Xiao-jie of Fudan University; Zhang Wei-cheng and Lou Cheng-hou of the Shanghai Institute of Plant Physiology, Academia Sinica; and Chai Tong-ruen and Wang Ming-qi of Fudan University. Their photomicrographs show the RLO in the xylem as well as in the phloem and phloem parenchyma cells of diseased plants. The rippled cell wall of the RLOs was 20–30 nm thick, and the accumulation and electron density of the microorganism varied considerably within sieve elements. Occasionally, osmiophilic protrusions were seen in a pattern that suggested they were radiating from the cell walls. Interested persons should write directly to Mr. Wu Xiao-jie, Fudan University, Shanghai, The People's Republic of China.

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Many explanations have been offered over the past 50 yr for the movement of sugar in the sieve tubes of phloem. D. S. Fensom of Mount Allison University, Sackville, N.B., Canada, takes a critical look at the most popular explanation—the pressure-flow mechanism proposed by E. Münch in 1930. According to this theory, sugar flows in one direction, from the leaf mesophyll cells of high concentration (the source) through the sieve elements to root cells of lower concentration (the sink). The actual movement of sugar across membranes in the leaf toward and into the phloem involves active (energy-requiring) transport. Water then follows in response to the lowered osmotic potential, and water pressure develops and forces the solution downward through the sieve elements. Fensom identifies several problems with the hypothesis: 1) Sieve elements do not appear suited to support water pressure. 2) Open channels of flow are required, yet closed sieve plates, organelles, and other obstructions can be found in mature sieve cells of both angiosperms and gymnosperms. 3) Metabolic inhibitors may reduce flow significantly, which should not occur if phloem flow channels are essentially passive conduits. 4) ATP and ATPase have been found in sieve tube sap, which is strange if no energy input is required along the path of flow. 5) Chilling stems or petioles to 0–4 C often greatly reduces sap flow, at least temporarily. Fensom proposes a model that reconciles ATP-assisted flow with pressure flow: Sucrose loading as well as unloading (both energy-dependent) may occur anywhere along the phloem, with an ubiquitous feedback mechanism between xylem and phloem, from tops to roots. Microfibrillar strands of P-protein can act as valve material; the strands hang through sieve plate pores and aggregate to plug the pores when back pressures and fluxes occur suddenly, as with local fluctuations in water pressure. Fensom believes the normal pressures are inadequate to produce observed flow rates for sucrose in phloem and proposes instead that pressure flow is supplemented by contributions from contractile proteins involving actinlike strands, myosin, and ATP. (Can. J. Bot. 59:425-432)

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The negative stain "dip" technique, used routinely for many years for diagnosis of plant virus diseases, has been shown by T. E. Tidwell, D. E. Mayhew, and B. Mayeda of the California Department of Food and Agriculture in Sacramento to also hold promise for diagnosis of some animal virus diseases. The leaf dip technique permits rapid examination of tissue for virus particles under the electron microscope. The leaf is cut with a sterile blade and the cut edge then "dipped" several times in 1–2% phosphotungstic acid before transfer to a grid for further processing and examination. The method was used successfully to reveal the presence of virus in spleens removed from pheasants showing symptoms of marble spleen disease. Presence of the virus was independently confirmed by serodiagnosis. The method reduces the need for complex purification schemes and other procedures currently used for diagnosis of animal viruses. (Plant Pathol. Rep. Lab. Serv. Calif. Dep. Food Agric. 5:24-25)

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The hypersensitive response of resistant potato cultivars to incompatible races of *Phytophthora infestans* is characterized by rapid cell death (necrosis) and accumulation of rishitin and lubimin (antimicrobial stress metabolites). Previous research has suggested a role of one or more compounds in the fungus, possibly glucans and glycoproteins associated with the fungal cell wall, as elicitors of the host response. R. M. Bostock, J. A. Kuć, and R. A. Laine of the University of Kentucky have now identified eicosapentaenoic and arachidonic acids from mycelium of *P. infestans* as the probable elicitors. These fatty acids were present in either free or esterified forms in all active fractions of the mycelial extracts and were active (caused necrosis and elicited accumulation of the stress metabolites in potato tubers) at the lowest concentrations tested. Of 18 commercially available saturated and unsaturated fatty acids tested, only eicosapentaenoic, arachidonic, and *cis*-4,7,10,13,16,19-docosahexaenoic acids were active as elicitors, with docosahexaenoic acid less active than the other two. (Science 212:67-69)

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External nutrients are well known to promote infection and damage by *Botrytis cinerea* on its many host plants. The nutrients may be provided naturally by pollen or leaf diffusates or artificially by nutrient broth. However, the role of more simplified nutrient sources, such as glucose and sucrose, has been unclear; some results suggest these nutrient sources promote infection, others suggest glucose or sucrose enhances conidial germination but not lesion formation. K. Akutsu, K. Ko, and T. Misota have shown that glucose promotes infection on cucumber leaves with high conidial density but not with low. At high density, fusion occurs directly between conidia, between germ tubes, or between conidia and germ tubes, resulting in a netted structure more vigorous than hyphae from many single conidia. Appressoria formed from the netted structures produced infection. Netted structures did not form at low conidial density, even in the presence of glucose, or at either high or low conidial density in the absence of nutrient. The authors believe the netted structures play a role in increasing the nutrient status for infection by *B. cinerea*. (Ann. Phytopathol. Soc. Jpn. 47:15-23)

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