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BOOK REVIEW

POLLEN SYSTEMS. Environmental Health Perspectives. Vol. 37. 1981. 209 pp.

The 37th Volume of the Environmental Health Perspectives presents the Proceedings of the Conference: Pollen Systems to Detect Biological Activity of Environmental Pollutants, held in Knoxville, Tennessee, May 5—8, 1980. The male gametophyte of higher plants affords many advantages as a test system for monitoring environmental mutagens. These include scoring mutational events based on large cell populations, thus simulating microbial mutations. The determination of mutation frequencies in pollen systems, however, raises many technical problems such as consistency in mutation scoring, accurate counting of pollen grains, staining procedures and automation of these procedures. The papers presented provide a detailed and broad review of all these topics. The introductory papers deal with the development of the microspore and microgametophyte and the type of DNA lesions induced by environmental mutagens. These are followed by papers describing the various pollen mutagenicity assays, including the waxy pollen system in barley and maize, the self-incompability system of *Oenothera*, *Adh locus* assay in maize, the maize pollen system to detect non-disjunction, the *Tradescantia* micronucleus bioassay *etc.* Further screening systems described in this Volume are based on the pollen tube growth in *Lilium longiflorum* and on the *in vitro* germination characteristics of maize pollen. Three papers deal with the possibility of automated scoring of pollen mutants and describe the flow cytometry and automated image analysis techniques. The Volume also includes two contributions on the monitoring with the *Tradescantia* stamen hair assay around the nuclear power plants in Japan and on the levels of airborne bioallergens in New York City.

T. GICHNER (*Praha*)