

# Nature Note

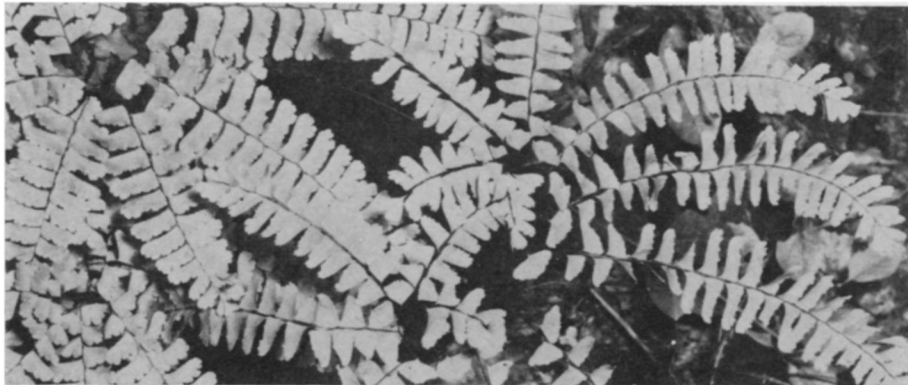
## Ferns

In moist woods or sunny fields; in swampy ravines or on wind-swept cliffs; in almost any part of the world except the deserts, grow an amazing group of plants—the ferns.

These graceful plants produce neither seeds nor flowers, and lead a double life. They are members of the Pteridophyta division, smallest group in the plant kingdom.

Composed of a root, a stem and several delicate leaves in one of their lives, ferns seem simple—but they have such a complex life cycle that it was not fully analyzed until the middle of the nineteenth century. Beneath the fern leaves appear tiny clusters of brown cases containing “fern dust.” This is made up of spores only one five-hundredth of an inch wide. A single fern may produce more than 50 million spores in a summer. When ripe, these

dustlike spores drop or are blown onto the ground where they begin their second life. Each microscopic single-celled body immediately puts down a slender root hair to anchor it to the soil. It develops, cell by cell, into what is called a prothallus or gametophyte.



This is a tiny flat disk in the shape of a heart, no bigger than half your fingernail, and as thin as a piece of paper. On the underside of this obscure plant, egg cells are produced in small cups, and farther away sperm cells are formed which swim over the moist

surface to fertilize the eggs. After a few weeks a new plant emerges from this union, sending a tiny root into the earth and a leaf and stem toward the sun, drawing nourishment from the prothallus as an unborn baby draws nourishment from its mother. A tiny leaf opens and begins manufacturing its own food from the sun, air and soil nutrients. The prothallus shrivels and dies. A second series of leaves begins to unfurl and take over the task of manufacturing food. A new fern has appeared.

One of the most easily identified ferns of the 5,000 species of the world is the maidenhair, *Adiantum pedatum*. This fern is easily recognized by the distinctive circular pattern made by its feathery twice-pinnate leaves, borne on two curving parts of its jet black midrib.



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Listing for readers' information of new 16mm and 8mm films on science, engineering, medicine and agriculture for professional, student and general audiences. For further information on purchase, rental or free loan, write to distributor.

**LSD-25.** 16mm, color, sound, 27 min. Tells what the drug is, and what it does, emphasizing how much remains to be known about LSD, and its very real potential for disaster including brain and chromosome damage. Audience: high school and college students, parents, medical and law enforcement groups. Purchase \$275 or rental \$27.50 from Professional Arts Inc., Box 8484, Universal City, Calif. 91608.

**THE PROTIST KINGDOM.** 16mm, color, sound, 14 min. Many scientists find it convenient to include six major groups of living things not made up of cells into the Protist Kingdom: sarcodina, ciliates, flagellates, sporozoa, slime molds, and bacteria. Introduction and examples of this kingdom. Audience: Junior-senior high. Purchase \$150 from Film Associates, 11559 Santa Monica Blvd., Los Angeles, Calif. 90025.

**SOURCES OF AIR POLLUTION, MIS-677. EFFECTS OF AIR POLLUTION, MIS-678. CONTROL OF AIR POLLUTION, MIS-676.** Three films, 16mm, color, sound, five minutes each. Produced to serve as concise introduction to air pollution problems. Each is designed to show viewer the relationship between our modern technological way of life and air pollution, the principal sources of air pollution, and examples of adverse effects. Because of their similarity, the use of all three films on the same program is not recommended. Audience: general. Free loan from Public Health Service Audiovisual Facility, Atlanta, Ga. 30333.

**THE STARS AT NIGHT.** 16mm, color or b&w, sound, 11 min. Answers why we cannot see stars by day, why they seem to move at night, and why different constellations are seen at different times of the year. Audience: grades 1-3 science. Purchase \$120 color or \$60 b&w from Coronet Films, 65 E. South Water St., Chicago, Ill. 60601.

