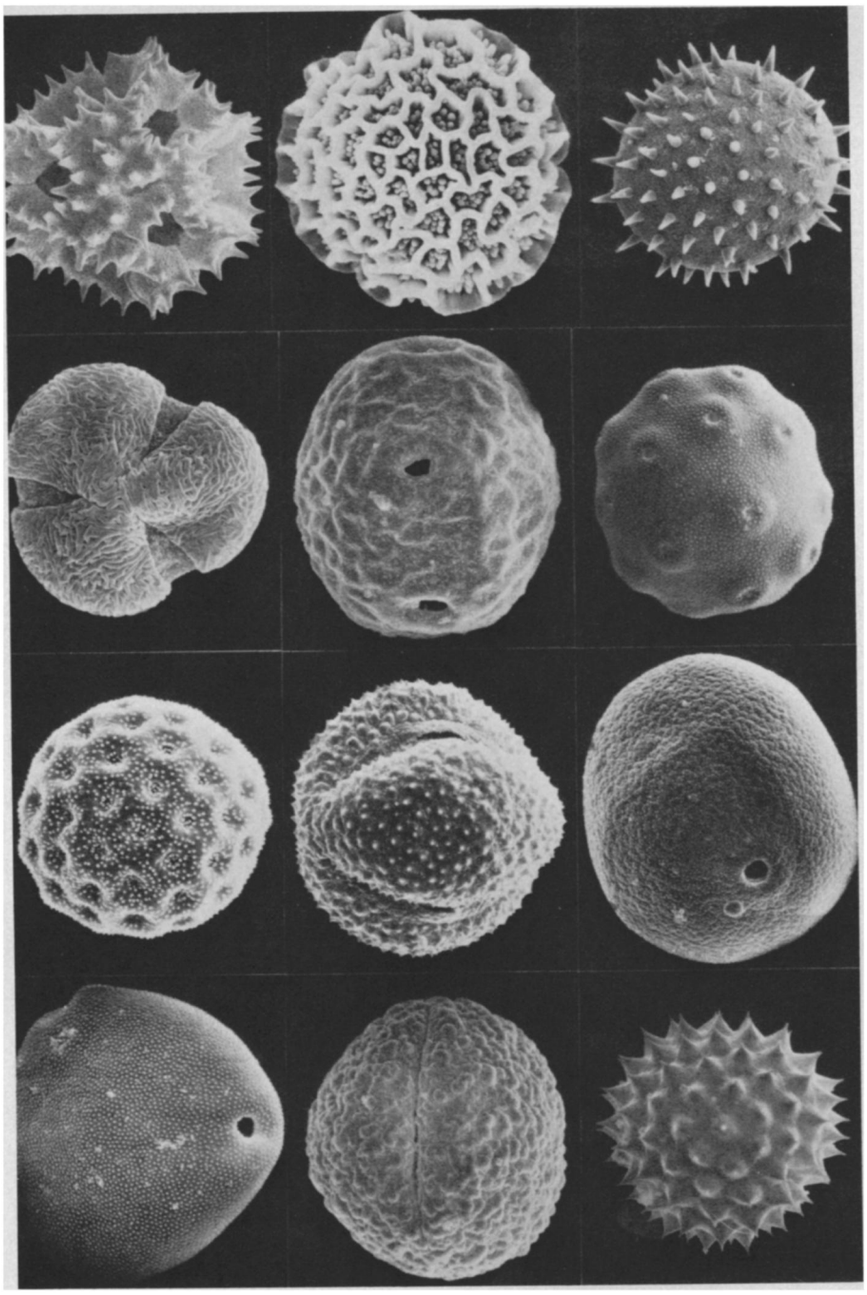

Maybe these are what have been bothering you

Sneezing a lot lately? These photographs, taken under a scanning electron microscope at the Smithsonian Institution National Museum of Natural History, show the culprits that cause so much discomfort to hay-fever sufferers.

The pollen grains are from left to right, top to bottom: dandelion, bougainvillea, hibiscus, box elder, American elm, black walnut, saltbush, sagebrush, Johnson grass, pecan, white oak and giant ragweed. They are magnified 1,800 to 3,400 times actual size.

Pollen is the male sex cell of a flowering plant encased in a tough, durable wall or exine that protects the cell on its journey from stamen to stigma. This transfer, made by animal, wind or water, is necessary for the completion of a flowering plant's life cycle—for seed and fruit production. The pollen grain is one of the most indestructible structures found in nature.

The number of hay-fever producing plants is small. They tend to be wind-pollinated, produce large amounts of pollen and have toxins that cause allergenic reactions. The most significant hay-fever plants, in terms of allergenic reactions they produce, are those members of the grass and daisy or aster family. Not only are they very abundant but they produce large quantities of buoyant pollen.

Sun dances for Skylab: Scientists elated, puzzled

The sun is popping out all over, keeping the Skylab astronauts hopping and solar scientists in Houston near stages of exhaustion trying to keep up with all the activity.

In the last three weeks of the current 27-day solar rotation period there have been 24 active regions, two giant "X" type X-ray flares, dozens of smaller and medium-sized flares, and resulting geomagnetic storms, auroras and shortwave radio interference on earth.

The two whoppers, the "X" flares which happened Sept. 6 and 7, elicited all kinds of sun dancing by the scientists monitoring the Skylab telescopes in Houston. Both flares were big events and released 10 times more X-rays than anything yet observed by the Skylab crew, but the flare of Sept. 7, called a "proton flare," created more visible chaos on the sun. "That's a big daddy," quipped the astronauts. The flare released a tremendous amount of material, 10 times the mass of the earth, and sent protons traveling toward earth at 30,000 miles per second. The first protons were detected by earth-orbiting satellites within 30 minutes of the start of the event. The event itself lasted two hours; the effects on earth lasted more than 48 hours. According to Joseph Herman of the National Oceanic and Atmospheric Administration, the flare caused power-line disturbances at the northern latitudes. It produced enough energy to supply all energy needs for earth (including electricity, coal, gas) for the next 500 years and enough energy for electricity for the earth for the next 10,000 years. The energy release was equivalent to 100 million times that which caused the great San Francisco earthquake.

All this is an enigma to the scientists. The sun is supposedly now in the quietest period of its 11-year cycle of activity. Activity on the sun is measured by the size and number of sunspots, and by that criterion the sun is now as active as sunspot maximum. "We just didn't expect to see this much activity," says E. M. Reeves of Harvard College Observatory. "The flares of last August (SN: 8/19/72, p. 119) were unusual for this time period," says James E. Milligan of the Marshall Space Flight Center. "But at least last August's activity was limited to just one region. Now the active regions are popping out all over the place."

How do the scientists account for all this? "No one really knows," says Milligan. "The sun is just blowing its top."

So far the Skylab 2 astronauts have spent more than 230 hours observing