retains the impacted pollen. The disks are rotated 6° for each electrical pulse received by a stepping motor which provides a capability of 60 discrete samples per disk. Because the disks advance only upon command, the sophistication of the sampling sequence depends solely on the availability of properly spaced electrical pulses.

Smoke tracer studies show that the rotating mechanism develops local turbulence which probably smooths the small-scale pollen gradients near the sampler. This smoothing makes the pollen catch insensitive to locally anisotropic wind eddies of approximately sampler dimensions and therefore more representative of the true pollen concentration.—ALAN L. COLE, Ph.D., *associate research meteorologist*, and ALBERT W. STOHRER, M.S., *assistant research engineer, department of meteorology and oceanography, College of Engineering, University of Michigan, Ann Arbor. This invention was developed under Public Health Service research grant No. AP-00006.*

Microscope Substage

A microscope substage has been designed to facilitate the manipulation of single plant cells under sterile conditions. The substage can be used with the Bausch & Lomb Stereozoom Dissecting Scope, model SVB–73. The substage consists of an aluminum frame holding a glass plate. On the glass plate a glass tray, as wide but only two-thirds as long, slides back and forth, guided by the aluminum frame. The glass tray is designed to hold two 25 by 100 mm. standard petri dishes. The middle third of the substage is left open for the microscope; the left and right thirds at each end are covered by plexiglas "garages." A petri dish on the glass tray is in one of the garages or under the microscope. The microscope is surrounded by a plexiglas collar with an opening which permits the insertion of needles, pipettes, and other tools used to manipulate cells. The collar and garages maintain a sterile atmosphere over the open petri dishes. Because all components, except the frame, are made of transparent material visibility of the objects remains maximum, lighting optimum, and it is possible to illuminate cells from underneath. The stage is easily assembled and disassembled.—TOM STONIER, Ph.D., *associate professor, department of biology, Manhattan College, Riverdale, N.Y., and* HARRY RYMER, *engineer, Laboratory Concepts, Inc., Bronx, N.Y. This invention was developed under Public Health Service grant No. CA–06957.*

Achilles Reflex Elgon

A special elgon (electrogoniometer) was designed to obtain a record of an Achilles reflex test. It consists of a goniometer in which a potentiometer was substituted for the protractor. The potentiometer has 15,000 ohms of resistance and two metal arms which are 12 cm. and 15 cm. long. This instrument is placed so that the potentiometer is over the center of the ankle joint; the longer arm is taped to the lower leg and the shorter one to the lateral side of the foot pointing to the little toe.

The elgon is connected to a small box containing a 2,200-ohm adapter, a 500-ohm sensitivity, and a 9-volt battery. The box is connected to an electrocardiograph which records the movement of the potentiometer. The record will show an indentation caused by the hammer tap followed by the upstroke of muscular contraction and then by the downstroke of relaxation. The reflex time and the duration of contraction and relaxation phases can be measured easily from the record.—PETER V. KARPOVICH, M.D., *research professor of physiology, Springfield College, Springfield, Mass. This invention was developed under Public Health Service research grant No. AM 06724–03.*