



**Blood Vessel Tension Tester** In the photo, a medical researcher is using a specially-designed laboratory apparatus for measuring blood vessel tension. It was designed by Langley Research Center as a service to researchers of Norfolk General Hospital and Eastern Virginia Medical School, Norfolk, Virginia.

The investigators are studying how vascular smooth muscle—muscle in the walls of blood vessels—reacts to various stimulants, such as coffee, tea, alcohol or drugs. They sought help from Langley Research Center in devising a method of measuring the tension in blood vessel segments subjected to various stimuli. The task was complicated by the extremely small size of the specimens to be tested, blood vessel "loops" resembling small rubber bands, some only half a millimeter in diameter.

Langley's Instrumentation Development Section responded with a miniaturized system

whose key components are a "micropositioner" for stretching a length of blood vessel and a strain gage for measuring the smooth muscle tension developed. The micropositioner is a two-pronged holder. The loop of blood vessel is hooked over the prongs and it is stretched by increasing the distance between the prongs in minute increments, fractions of a millimeter. At each increase, the tension developed is carefully measured. In some experiments, the holder and specimen are lowered into the test tubes shown, which contain a saline solution simulating body fluid; the effect of the compound on developed tension is then measured. The device has functioned well and the investigators say it has saved several months research time.