tion to the punched-tape output, the device supplies digital information in the form of electrical contact closures that may be used for telemetering. (Fischer & Porter Co., Dept. 72)

**Indicator and Recorder** is a servo-operated device that provides digital read-out of electrical signals produced by transducers while simultaneously recording on a 3-in. strip chart. Chart drive is synchronous. Digital read-out accuracy is said to be ±0.1 percent, chart accuracy ±1 percent. (Gilmore Industries, Inc., Dept. 67)

**Inertial Switch** is sensitive to acceleration axially, radially, or omnidirectionally from 0.01 to 500 g. Accuracy is said to be ±0.1 percent, repeatability ±0.003 percent. Automatic reset is optional with closure time variable, and adjustable acceleration setting can be provided. Weight is about 1 oz. (Safe Lighting, Inc., Dept. 73)

**Sub-Audio Tuned Amplifier** is continuously adjustable from 0.3 to 3000 cy/sec. Attenuation of second harmonic is greater than 35 db, of third harmonic greater than 45 db, of higher harmonics, 50 db. Input impedance is 10 megohm shunted by 25 μf. Output impedance is approximately 300 ohm. Amplification at the center frequency is approximately unity. (Electronics Lab., Inc., Dept. 74)

**Ultramicrotome** produces automatically sections 75 to 400 μ for study with electron microscopes. Single sections 1 to 10 μ thick for optical microscopy can also be prepared. Specimen advance, actuated by thermal expansion of two nickel cores, is controlled by varying current through the coils surrounding the cores. Current is applied only during the return stroke of the mechanism. The effect of the current, in addition to heating, is to produce magnetostriction of the cores. The magnetostrictive contraction of the cores retracts the specimen so that it does not contact the knife on the return stroke. Cutting rate is approximately 30 sections per minute. (Philips Electronics, Inc., Dept. 84)

**Oscillogram Amplitude Tabulator** consists of a stationery unit, a printing counter, and a hand-held rectangular frame with two hairlines. One hairline is fixed; the other can be moved in either direction at fast or slow speed with a control knob. The instrument reads oscillogram and strip-chart amplitudes up to 6.5 in. and prints this information on adding-machine tape. A sequential count is recorded for each reading. Amplitude reading and timing count are directly visible on the counter. (Gerber Scientific Instrument Co., Dept. 76)

**Power Supply** for driving tape-recorder motors is available for operation from either 24 to 28 v d-c or 105 to 125 v, 48 to 62 cy/sec a-c. Output is 100 w with frequency regulation ±0.02 percent. Third harmonic content is said to be negligible. (Precision Instrument Co., Dept. 80)

**Mechanical Force Amplifier** is a mechanical servomechanism for amplification of small forces. Actuation requires less than 1 g; and output force can be as much as 500 g. The device uses a ring friction-driven by a roller. Input motion is applied to a control yoke that tilts the roller. The tilt causes the ring rotated by the roller to move laterally along the roller. Lateral motion of the ring is imparted to a follower which transmits the output force. Maximum force is developed at the null position. Time for full-scale travel of 2 in. depends on the angle of tilt and the rotational speed of the driver. At 300 rev/min the time ranges from 0.8 sec for 15-deg (max) tilt to 6.1 sec for 2-deg tilt. (American Meter Co., Dept. 81)

**Joshua Stern**

National Bureau of Standards, Washington, D.C.