INDIANAPOLIS
ATHENS
MELBOURNE
ORLANDO
GREENSBORO
TEL AVIV
HAMBURG
ALBUQUERQUE
SEATTLE
SAO PAULO
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TEKTRONIX

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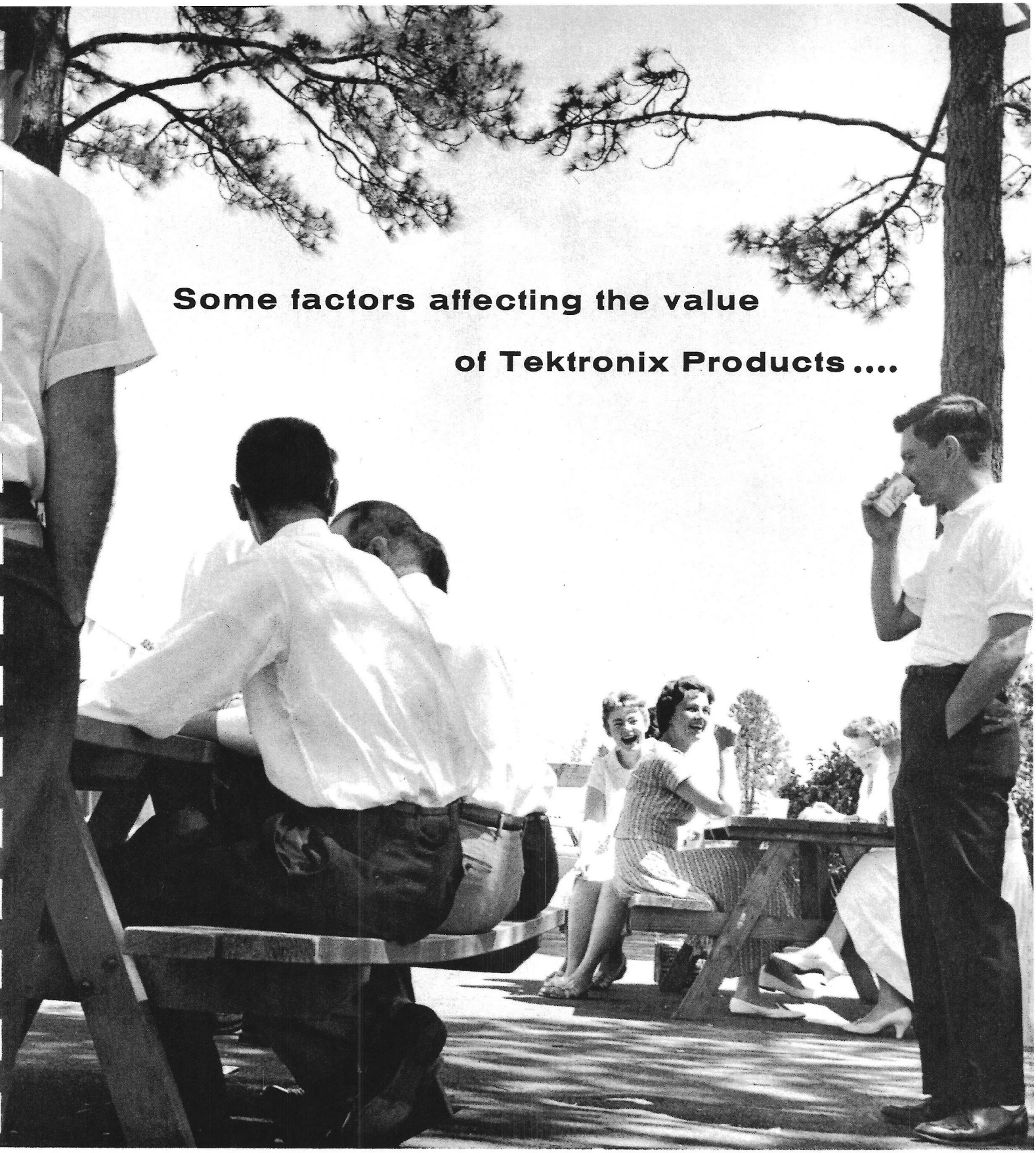
oscilloscopes

& ASSOCIATED INSTRUMENTS

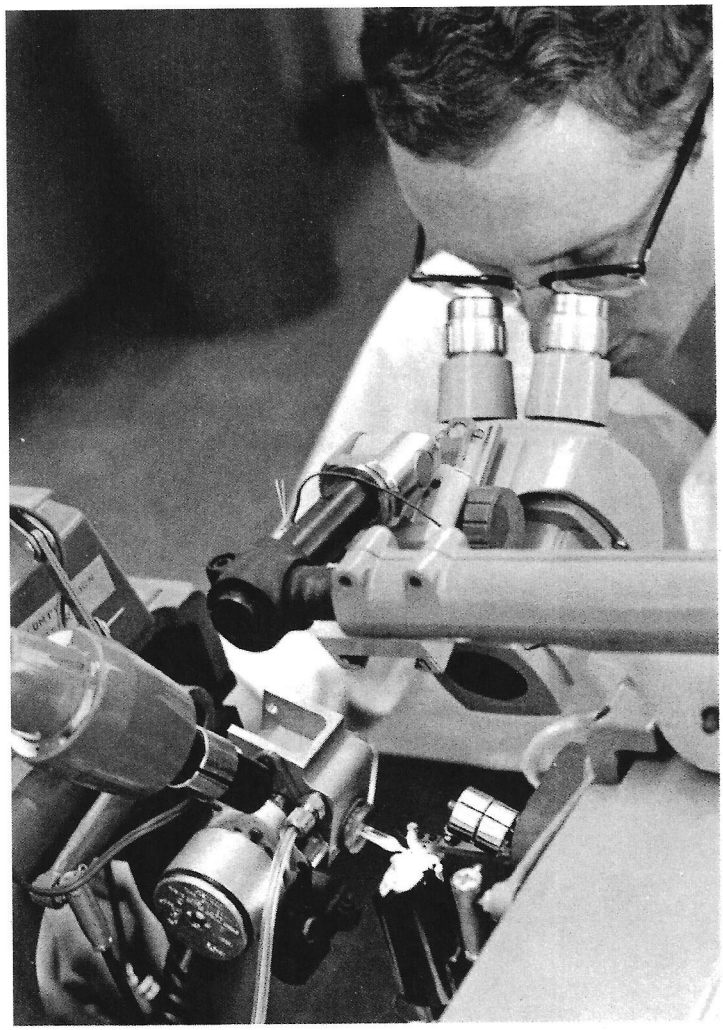
JUNE 1961

CATALOG 20

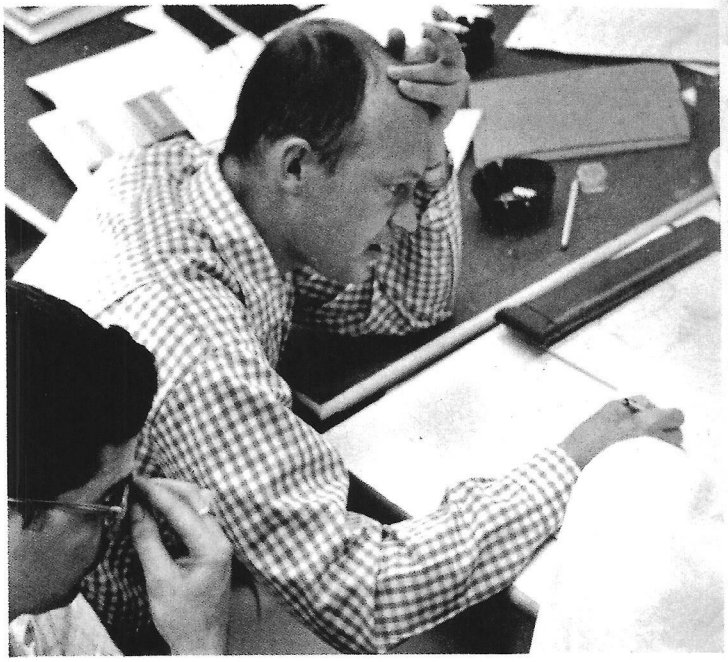


OSCILLOSCOPES

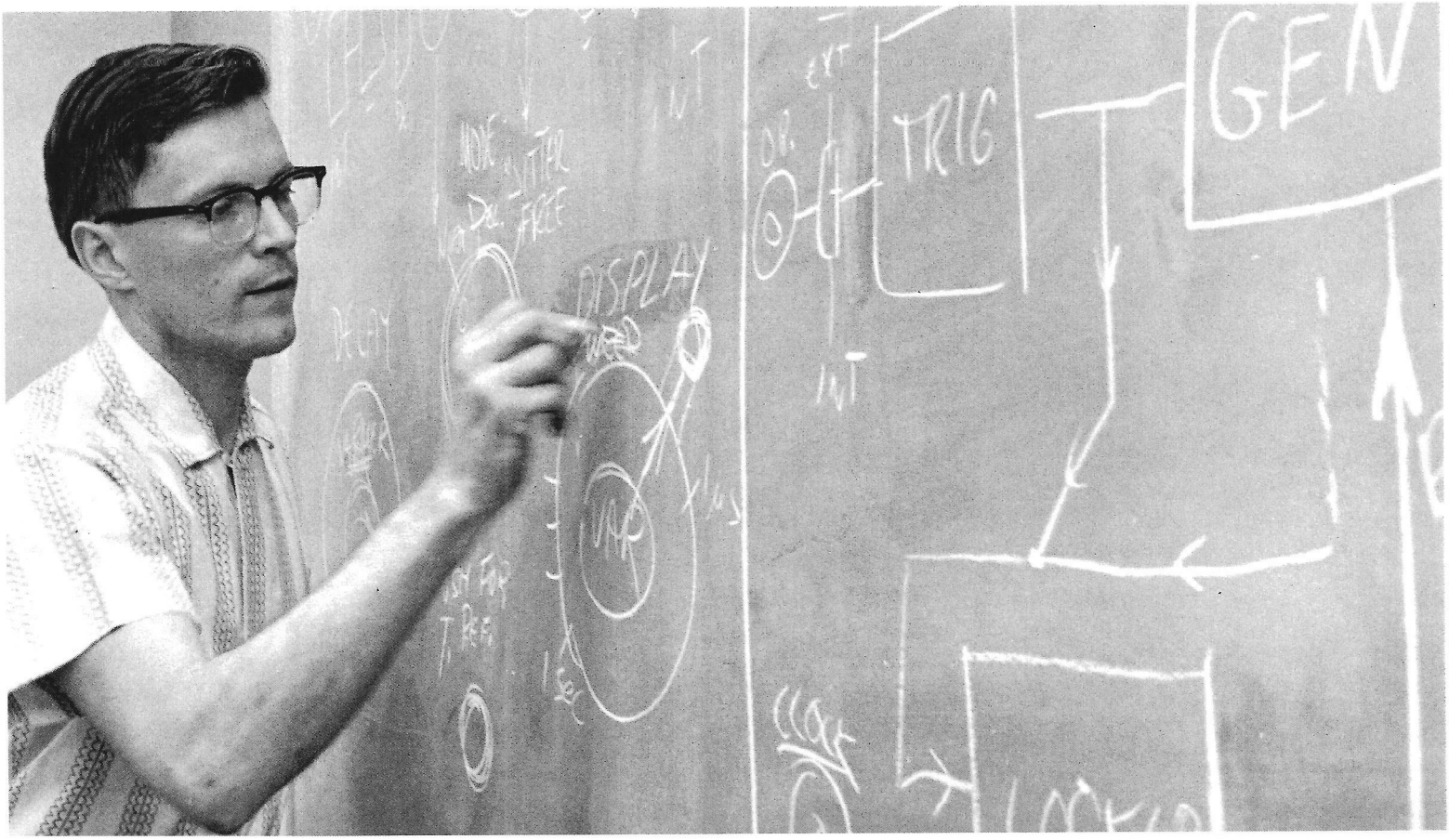
AND ASSOCIATED INSTRUMENTS



EXPERIMENTAL TECHNIQUE IN CONSTRUCTION OF SPECIAL SOLID-STATE DEVICE—Tektronix research is aimed at discovery of materials and techniques useful in advancing the art of oscillography. Physicists, chemists, engineers, and their technical aides follow paths that begin at or beyond the current limits of the practical. A measure of their success: the steady improvement in performance and reliability of commercial oscilloscopes.

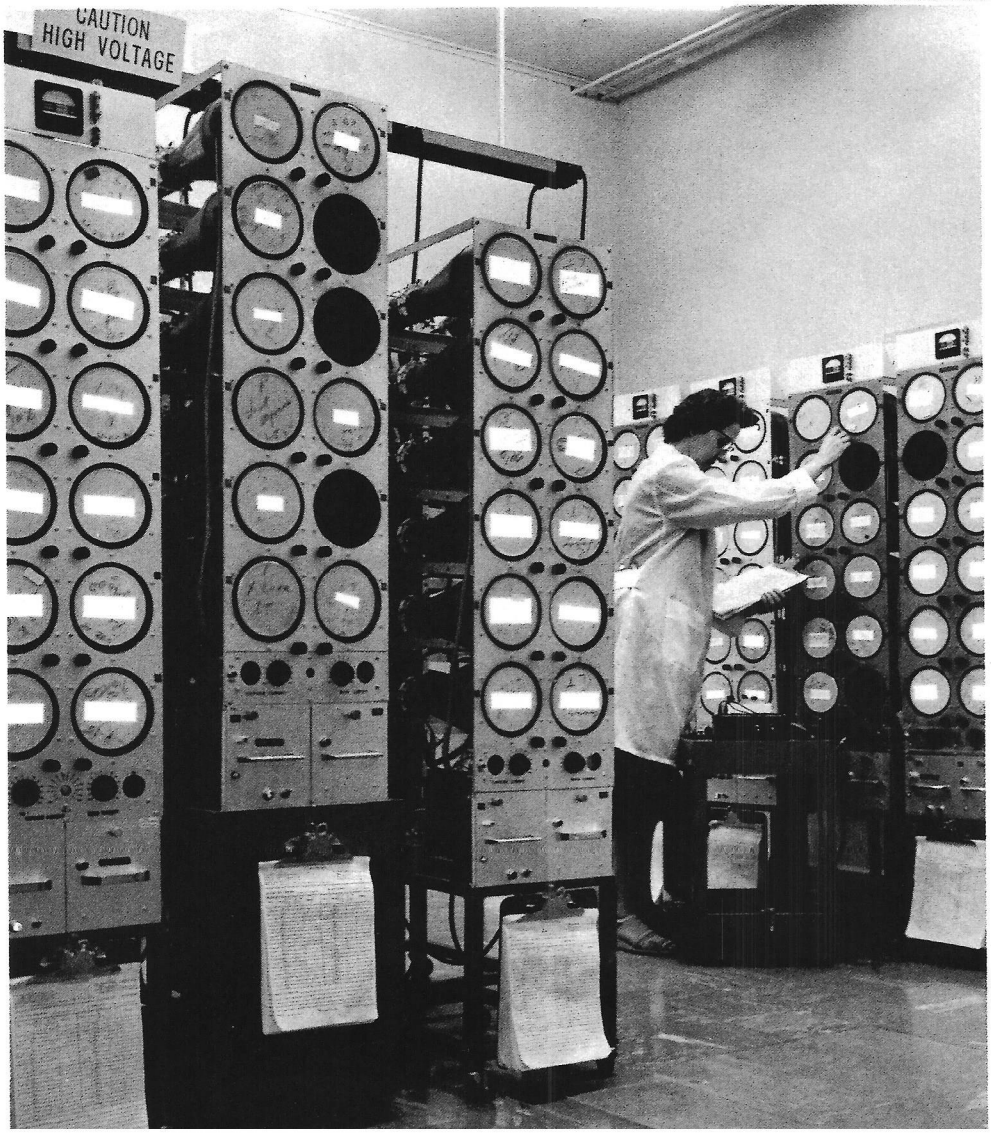


NEW CONCEPTS—NEW CIRCUITS—Instrument Design Groups blend the products of research with their own ingenuity in electronic circuitry to bring forth an electrical configuration with advanced performance. Working together with mechanical, industrial, and cathode-ray tube design groups, component design and evaluation groups, they decide on the compromises required to provide the best value in terms of performance, reliability, and price.

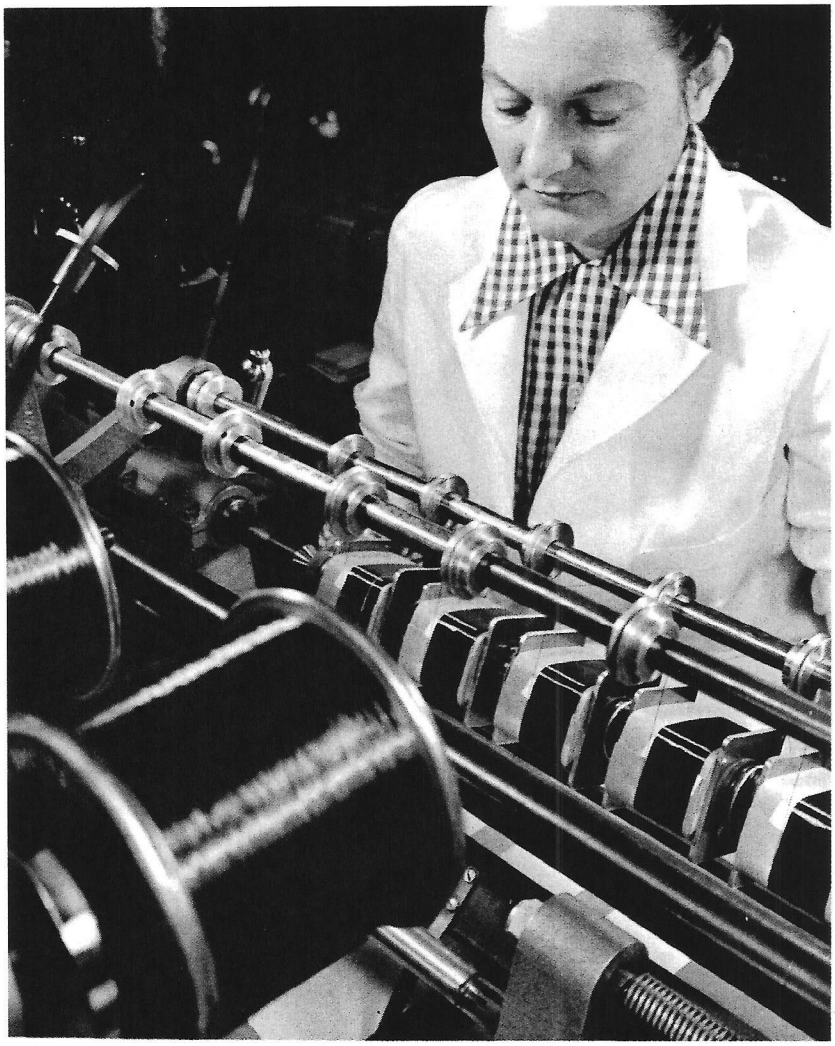


AUTOMATIC RODDING STATION—The glass rods that support electron gun assemblies of Tektronix cathode-ray tubes are applied in one operation to preserve the high alignment accuracy provided by precision jigs. Twenty-nine separate parts and assemblies make up the electron gun of the T555 dual-beam CRT, of which two, the vertical-deflection-plate assemblies, each contain fourteen separate parts.

ACCURACY CHECK WITH OPTICAL COMPARATOR—The T519 cathode-ray tube, heart of the Type 519 dc-to-1 gc Oscilloscope, requires exacting manufacturing procedures. In this step the stripline of the distributed vertical-deflection system is checked with a magnifying optical comparator to an accuracy of ±0.0007". Material composition and temper, and thickness of plating are also very critical in this 3 mil-thick, 2¾"-long cathode-ray tube part.

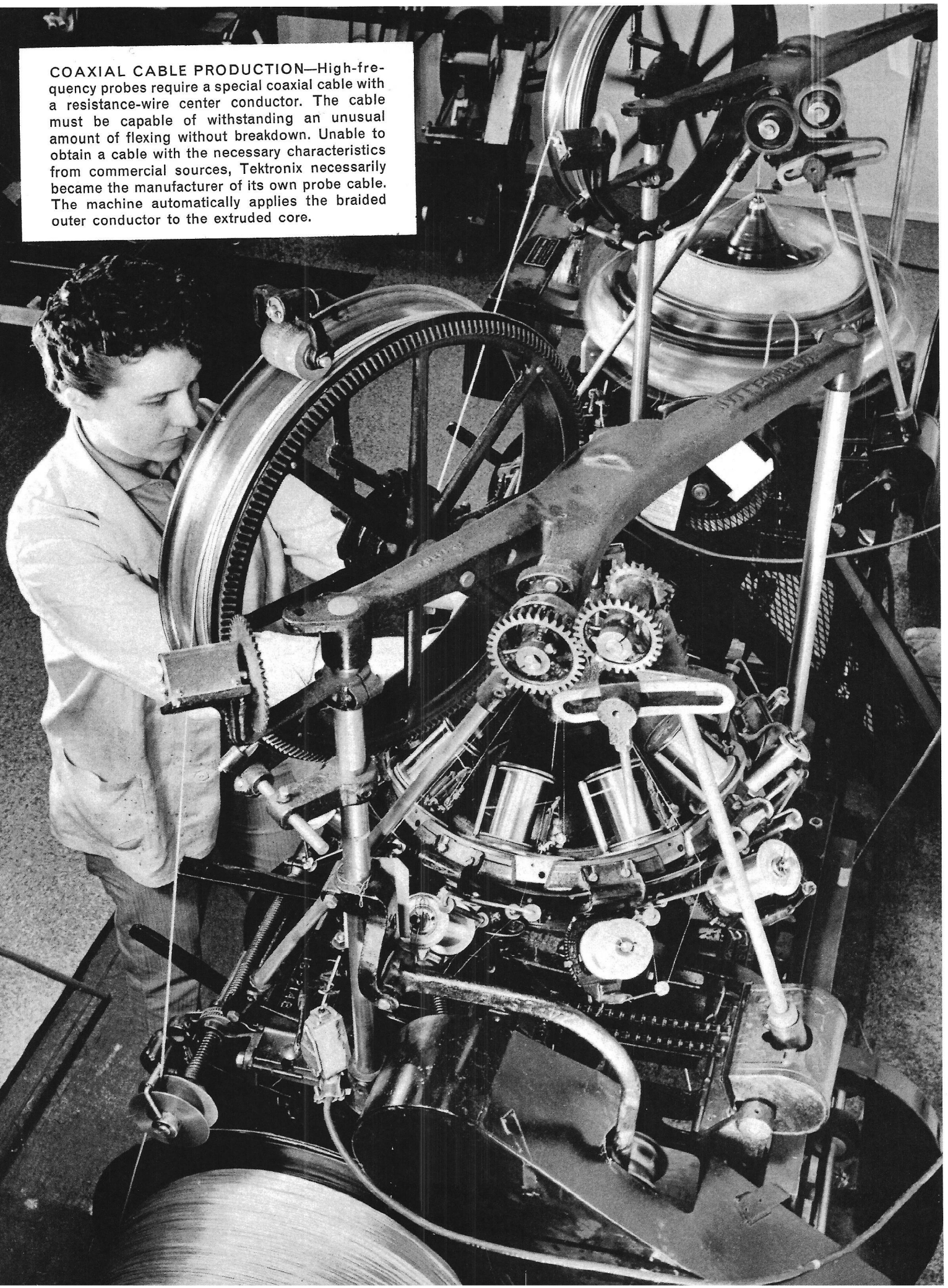


CATHODE-RAY-TUBE LIFE TESTS—One of the many extra operations in Tektronix manufacturing procedures is this life test. Tubes selected at random from each manufacturing run are operated on a timed on-off schedule to determine useful lifetime. Carefully kept records are used by design and manufacturing engineers to aid in producing tubes with longer life expectancy.



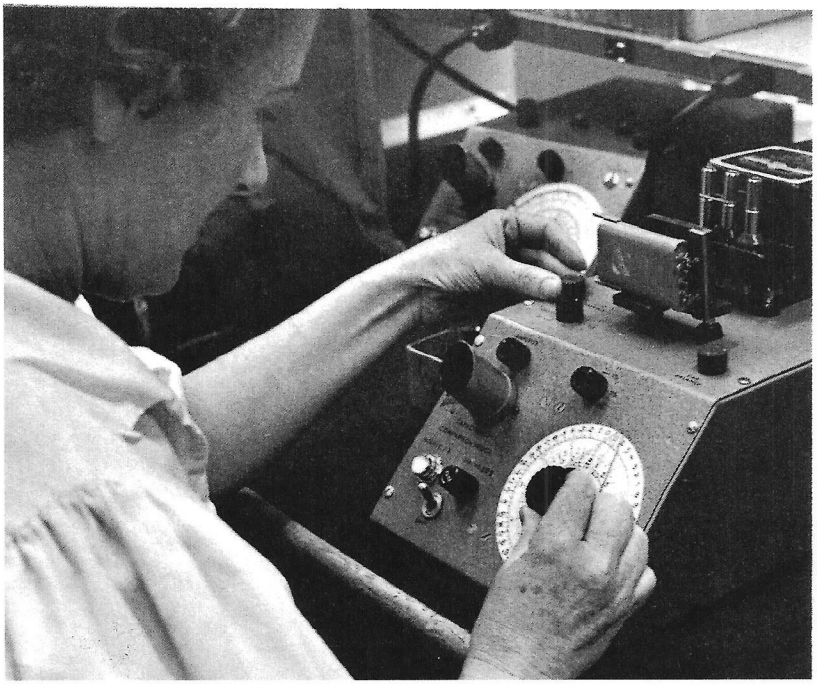
TRANSFORMER AND COIL MANUFACTURING—Transformers designed specifically for the power requirements of the instrument contribute much to overall reliability. Among the many oscilloscope components manufactured at Tektronix are eighty different types of power transformers and three-hundred different items in coils and small transformers. In addition to these and cathode-ray tubes, Tektronix-manufactured components include special resistors and capacitors, instrument front panels, ceramic and plastic parts, coaxial cable, and small circuit boards.

TOOLS AND DIES FOR EFFICIENT PRODUCTION—The unique procedures in many Tektronix manufacturing operations present a wide variety of tooling problems. Dies of many sizes and types for metal, ceramic, and plastic manufacturing, special tools, and special machines required for economical production are made in this area. One function of the tool and die making group is producing dies for the huge machines that stamp out a complete chassis in one operation.

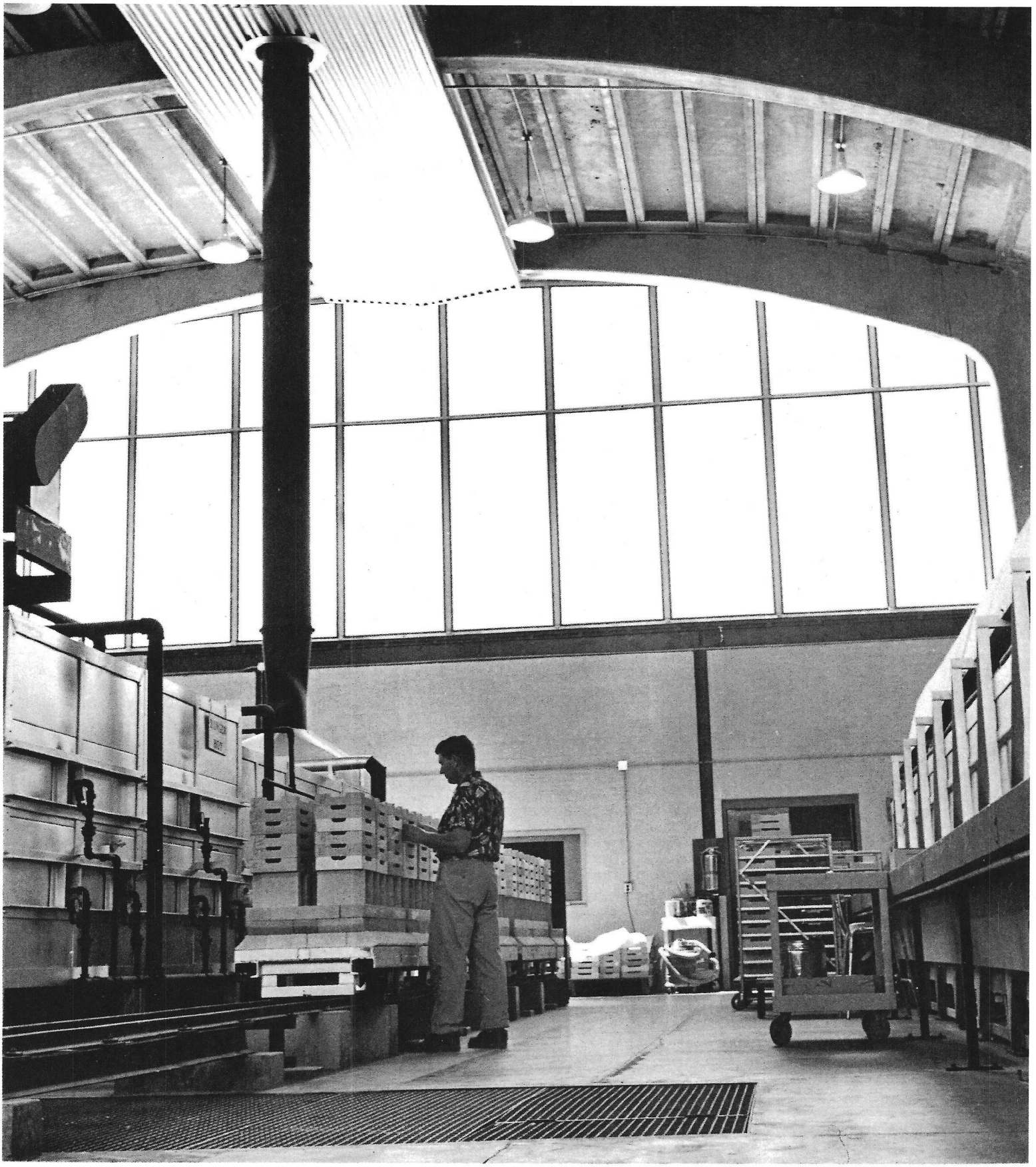


COAXIAL CABLE PRODUCTION—High-frequency probes require a special coaxial cable with a resistance-wire center conductor. The cable must be capable of withstanding an unusual amount of flexing without breakdown. Unable to obtain a cable with the necessary characteristics from commercial sources, Tektronix necessarily became the manufacturer of its own probe cable. The machine automatically applies the braided outer conductor to the extruded core.

INSTRUMENT ASSEMBLY AREA—This is one of three large assembly areas located in buildings especially designed for this purpose. The assembler performs the complete mechanical assembly, and the wirer does all the wiring on each chassis or subassembly. The final assembler combines these with front and rear panels and structural members to form a complete instrument. The worker's responsibility for the complete job in his or her area fosters a strong feeling of pride in workmanship.



FINAL CALIBRATION OF TIMING CAPACITORS—The long-term accuracy of calibrated sweeps in Tektronix Oscilloscopes is due mainly to the extra emphasis we place on critical details in the design and manufacture of our sweep-timing capacitors. Careful control over dielectric absorption, leakage resistance, and impregnation help insure sweep linearity, timing accuracy, and general oscilloscope reliability.



CERAMIC PRODUCTION—The kiln section of the ceramic manufacturing plant is shown here. Ceramic production includes the unique ceramic terminal strips used in Tektronix instruments and such specialized items as isolation shields, bushings, and mounts for cathode-ray tubes, and attenuator, probe, and capacitor parts.

TRAINING FIELD ENGINEERS—Maintaining a constantly expanding field engineering organization (35 offices currently operating in the U.S. and Canada) requires a continuous source of thoroughly trained Field Engineers.

To be of real help to our customers, men selected for this work must have the proper combination of education and experience, as determined by our many years of successful field engineering operation. All candidates receive twenty-seven weeks of full-time instruction at our factory Field Engineering School. The training course consists of a carefully selected balance of circuit theory, trouble shooting and calibration, company philosophy and policy, and business administration. Curriculum is planned and guided by experienced Field Engineering Managers, and taught by full-time professional instructors.

All candidates who successfully complete the training course are assigned to an established Tektronix Field Office where they have the benefit of close association with seasoned Field Engineers. After permanent assignment, all Field Engineers return periodically for a concentrated two-week refresher course at the factory. Frequent regional and district get-togethers assist in cross-communication of application information valuable to our customers.

With more than eighty-five thoroughly-trained competent Field Engineers based at strategic locations, Tektronix is able to offer continuing assistance to users of oscilloscopes. You are invited to make use of your Tektronix Field Engineer's abilities to help you, not only in the selection of an oscilloscope, but also in its application and maintenance. He has much to offer.

Tektronix Field Office at Palo Alto, Californ